

Agricultural policy for Indonesia: Stalin's state gigantism or Bukharin's cooperative farming

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Abstract. This article considers the systemic failure of Indonesia's Food Estate Program (2020–2024) through the analytical lens of the 1920s Soviet agrarian debates between Nikolai Bukharin and Joseph Stalin. The study addresses a critical paradox: state agricultural policies continue to fail while Indonesia imports record amounts of rice despite 33 million small farmers. The authors applied a mixed-methods approach and the extended case study to construct an Agricultural Terms of Trade Index to empirically test the Scissors Crisis hypothesis (50 policy documents and fieldwork in three provinces). The key findings are as follows: (1) Food Estate projects scored 4.6/5 based on Stalinist characteristics (gigantism, coercion, ecological disregard), producing only 4,300 tons of rice at a cost of Rp 349 million per ton vs market price of Rp 6 million; (2) Agricultural Terms of Trade worsened by 40% in 2022–2024, making farmers leave the market and increasing rice imports from 444,000 tons (2019) to 3.05 million tons (2024); (3) successful cooperative models demonstrated 2.1–3.1% efficiency and maintained productivity under crisis periods. The study theoretically confirms the applicability of the Bukharinist political economy for the 21st-century agrarian analysis, proving its relevance beyond Soviet historiography, and proposes a three-tier policy roadmap, prioritizing smallholder empowerment, terms-of-trade stabilization, and cooperative industrialization as alternatives to state gigantism and corporate agriculture.

Key words: food sovereignty, agricultural policy, terms of trade, cooperatives, Indonesia, Bukharinist critique, land grabbing, peasant studies, food estate, smallholder agriculture, state intervention

In October 2020, President Joko Widodo declared the 30,000-hectare Food Estate project in Central Kalimantan, promising millions of tons of rice and national food sovereignty (Ministry of Agriculture, 2020). By 2024, only 2,000 hectares were planted, with most crops not growing due to the acidic peat soil (pH 3–4) unsuitable for rice requiring pH 5.5–6.5 (Tulis et al., 2024). State budget of Rp 8.7 trillion (\$580 million) was wasted, and over 5,000 Dayak community members lost land without compensation (Maskun et al, 2021). Instead of self-sufficiency, rice imports reached 3.05 million tons in 2024 (121% increase) (BPS, 2024). This failure revealed a deep paradox in the Indonesian agrarian policy (2014–2024) — a discrepancy between food sovereignty rhetoric in the Food Law No. 18/2012 and infrastructural “gigantism” (Kusumawardani et al., 2021). While government allocates huge resources to large-scale business, small farmers providing 90% of national food fight against land reduction (Wisnaeni, Najib, 2025). Indonesia loses about 100,000 hectares of productive paddy fields a year due to non-agricultural conversion while using unsuitable marginal lands for mega-projects (Faoziyah et al., 2024; Khanif, Yunita, 2024).

Why do state projects continue to fail, while constituting the development model? Why do policies ignoring smallholders’ needs and national food stability persist? Such failures indicate fundamental theoretical misunderstanding of the state–market–peasantry relationships. The article focuses on the classic Soviet agrarian debate between Nikolai Bukharin and Joseph Stalin to assess this complexity. We argue that the Indonesian agricultural policy is in the trap of “agricultural Stalinism”, emphasizing capital accumulation through land gigantism, centralized interventions, and systematic neglect of voluntary peasant mechanisms (Bernstein, 2010). While land grab literature (Hall et al., 2011; White et al., 2012) and Green Revolution critiques (Timmer, 2004) remain indispensable, they inadequately explain why states adopt extractive paths to ensure food sovereignty. The Bukharinist lens clarifies a critical omission — the essential role of voluntary alliance (*smychka*) between industrial and agricultural sectors and the “scissors crisis” — harmful price disparities that undermine peasant production incentives (Selden, 1993). The late-twentieth-century rural reforms in China and Vietnam prove Bukharin’s thesis by agrarian transformations based on peasant households’ empowerment and medium-scale cooperatives rather than state mega-projects (Huang, 1990).

The article answers four research questions: how the Food Estate project manifests Stalinist tendencies; to what extent the “scissors crisis” has affected Indonesia (2014–2024); why agricultural cooperatives fail to realize emancipatory potential; and how the Bukharinist model can be reconstructed as a policy alternative. Thus, the article theoretically revitalizes the Bukharinist political economy, empirical-

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ly enrich the comprehensive analysis of Indonesia's peasant terms of trade crisis (2014–2024), and proposes a policy roadmap for peasant empowerment.

Theoretical framework: The Bukharinist alternative

To understand Indonesia's agrarian crisis, we will consider the Soviet economic debates of the 1920s, since the Bukharin-Stalin dispute about models of agrarian development determined socialist modernization paths worldwide. Bukharin insisted that socialist construction proceeded with *smychka* (worker–peasant alliance), gradual accumulation through market mechanisms, and cooperative transformation respecting peasant autonomy. Stalin insisted on forced collectivization, extractive procurement, and command industrialization.

Unlike extractive approaches, Bukharin's concept of *smychka*, economic-political alliance between the urban working class and the rural peasantry, was based on economic interdependence and voluntary exchange. He argued that industry could not achieve sustainably without a strong internal market in rural areas; if peasant purchasing power was eliminated by excessive taxation or stifling prices, industry would have lost its main consumers. Therefore, fair terms of trade were not a matter of social justice but a precondition for macroeconomic stability (Bukharin, 1925; 1928). Bukharin emphasized that this alliance needed market incentives, not bureaucratic coercion, which he defined as transformation “at snail's pace” (*shagom cherepakhi*), recognizing the inadmissibility of changing the peasant collective consciousness by force.

Bukharin's institutional revolution was based on the gradual development of voluntary cooperatives in three stages: marketing and credit cooperatives helping peasants avoid usurers — inputs supply cooperatives — production cooperatives with land managed collectively but voluntarily. Bukharin called these cooperatives “schools of socialism” in which peasants would see efficiency of economies of scale without losing their autonomy. The optimal scale proposed was medium-sized cooperatives (50–200 hectares), allowing mechanization without mass social unrest typical for mega-scale projects (Lewin, 1974; Nove, 1992). The third principle was balanced sectoral development. Bukharin rejected the idea of scarifying agriculture for industry — both were to be developed in harmonious rhythm, which required careful trade management to avoid the “scissors crisis” — when prices of industrial goods (such as machinery and fertilizers) rose sharply while agricultural prices remained low. According to Bukharin, the state had to function as a facilitator using price mechanisms to coordinate the economy, ensuring that scissors crisis would not affect peasant incentives to produce surplus (Bukharin, 1921; 1928).

An antithesis to the Bukharinist model was agricultural Stalinism developed in the Great Leap project of the late 1920s. Theoretically, it was rooted in Preobrazhensky's ambition to ensure rapid capital accumulation by "robbing" the agricultural sector. In practice, this was forced collectivization depriving peasants of property rights to land and livestock, driving peasants into such giant production units as *kolkhoz* (collective farms) and *sovkhoz* (state farms) with thousands of hectares of land. State control was exercised through Machine Tractor Stations (MTS), that monopolized mechanization technology and used it for political control and harvest extraction (Preobrazhensky, 1965; Stalin, 1952).

The main characteristic of Stalin's model was "gigantism" — obsession with scale assuming that the larger the production unit, the more modern and efficient it was. This gigantism was often accompanied by technological fetishism ignoring local environment and traditional agronomic knowledge. An extreme example is Lysenkoism — when the pseudo-genetic theory became a basis of agricultural policy due to its ideological closeness with rapid progress narratives but determined huge crop failures. The forced transformation and liquidation of the middle peasant class (*kulaks*) resulted in destruction of rural social structures and such catastrophes as mass famine (1932–1933), when millions died of starvation while the state continued exporting wheat to buy industrial machinery (Conquest, 1986; Lewin, 1968; Davies, 1980).

The comparison of these two models is crucial for understanding the Food Estate policy in Indonesia: although the government often uses "modernization" rhetoric, the implemented policy shows alarming similarities with the Stalinist logic.

Table 1. Bukharinist vs Stalinist models

Dimension	Bukharinist Model	Stalinist Model	Food Estate Policy
Scale	Medium cooperatives (50–200 ha); household farms	Gigantic <i>kolkhoz</i> / <i>sovkhoz</i> (>1000 ha)	30,000-ha mega-projects
Speed	Gradual; voluntary	Forced Great Leap; coercive	Panic-driven implementation
Participation	Bottom-up; peasant sovereignty	Top-down command; no consultation	Minimal local involvement
Prices	Terms of Trade stabilization; fair prices	Scissors crisis; forced procurement	HPP suppression; input inflation
Technology	Appropriate; local knowledge	Fetishism; Lysenkoism	Large tractors on peatland
Ideology	Peasants as subjects and allies	Peasants as obstacles; proletarianization	Security discourse; militarization

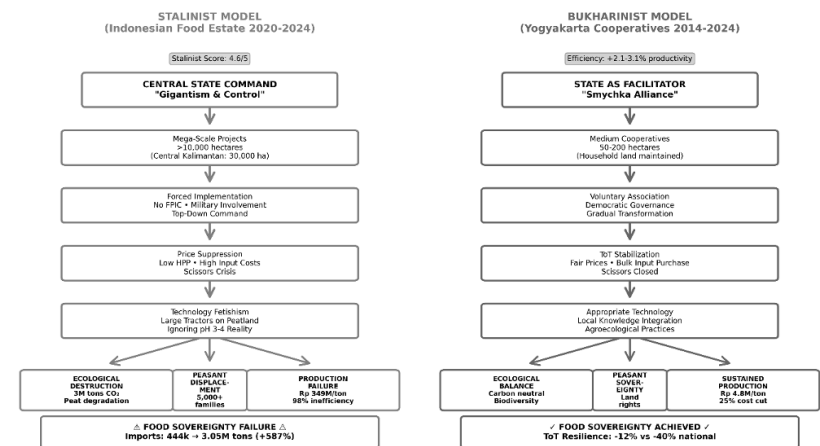


Fig. 1. Two development paths — Stalinist model (left) and Bukharinist model (right)
Source: BPS, 2024; Tulis et al., 2024; Maskun et al., 2024; field research (N = 30)

Indonesian Food Estate program scores 4.6 out of 5 on the Stalinist model: gigantism (30,000-hectare mega-projects), coercion (land seizure without consent), top-down planning (Jakarta-centric decisions), environmental problems (peatland destruction), and productivism (rice monoculture); only peasant subordination scores lower (3 out of 5) due to the residual resistance. Application of the Bukharinist model to the contemporary Indonesian realities requires four new dimensions: democratic accountability — unlike Stalin's totalitarian dictatorship, the Indonesian government should hold elections (about 30% of voters are farmers) to provide political opportunity for a new 'Bukharinist alliance (peasants can demand sectoral balance and fair prices) (Van der Ploeg, 2008); globalization and value chains — the 21st-century *smychka* should include strategic autonomy in global value chains, ensuring integration into world markets without threatening national food sovereignty (Schneider, 2017); climate and environmental dimensions — medium cooperatives are far more adaptive to agroecological principles compared to giant-scale monocultures that destroy biodiversity and emit huge amounts of carbon (Anderson et al., 2019); digital economy, providing digital technology for platform cooperatives with collective data use, blockchain-based supply chain management, and decentralized autonomous organizations (DAO), i.e., Bukharin's cooperatives as "schools of socialism" can be transformed into transparent, efficient and truly democratic economic entities (Scholz, 2016). With these adaptations, the Bukharinist alternative is no longer a historical artifact but a reliable roadmap for a just and sustainable Indonesian agrarian transformation.

Methods and data

The study of structural dysfunction in the Indonesian agrarian policy requires a methodological framework that allows for both processing statistical data and identifying power dynamics often hidden behind official figures. This research has a mixed-methods design integrated with the extended case study (Burawoy, 1998) to overcome epistemological limitations of single approaches: quantitative analysis often fails to capture marginalization and peasant resistance, while qualitative analysis without macro-data risks to collect anecdotes. By connecting micro-failures with the state macro-policies, we aim at proving empirically the “Stalinist dimension” in the Indonesian food management: from macroeconomic data to policies analysis and then intensive fieldwork.

The quantitative analysis focuses on the Agricultural Terms of Trade Index (ToT_{agr}) designed to test the Bukharinist “scissors crisis” thesis. Unlike the Farmer’s Exchange Rate (NTP), regularly published by the BPS and presenting a too optimistic picture due to government-subsidized household consumption indices, ToT compares output (rice and soybeans) and input price indices, which is crucial because farmers’ real economic burden lies in production costs: $ToT(t) = \frac{Ppaddy(t)/Ppaddy(2014)}{Weighted\ input\ index(t)/base(2014)}$. To weigh the input variables, we used the scheme derived from the BPS real rice production costs, adjusted as follows: fertilizers (45%), pesticides (30%), seeds (15%), and fuel/energy (10%). Monthly time-series data from the BPS for 2014–2024 were collected to show both long-term price fluctuations and the impact of short-term economic shocks.

To confirm the quantitative analysis, the structural break test (Chow Test) was applied to statistically prove a fundamental shift in the peasant incentive structure following the start of the Food Estate project in 2020 and the 2022 global energy crisis. Analysis of national budget documents (APBN and LKPP) was conducted to compare fiscal efficiency of two development models. By calculating key metrics, including the Incremental Capital-Output Ratio (ICOR) and investment per hectare, we calculated the state expenditure required to produce one ton of rice within the Food Estate project, compared to the direct support for small farmer cooperatives. This methodological triangulation helped to empirically test Bukharin’s idea that investment at the smallholder level provide significantly higher marginal efficiency than capital-intensive but low-productive state gigantism.

In addition to the quantitative findings, we conducted a qualitative analysis of the elite-level decision-making, tracing how the “food emergency” narrative during the covid-19 pandemic was strategically used by the government to legitimize the bypassing of standard regulatory protocols, including environmental impact assessments (AMDAL) and land tenure consultations. The data consisted of 50

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policy documents, including presidential addresses, ministerial strategic plans, and publicly available cabinet meetings. These documents were analyzed using the NVivo software with a coding scheme designed to distinguish between Stalinist (command modernization, mass mechanization, food corporations) and Bukharinist approaches (voluntary cooperatives, community sovereignty, price stability). Coding reliability was ensured through an Inter-Coder Reliability score, ensuring the objectivity of discourse analysis.

Fieldwork was conducted in January–March 2023 in three provinces: Central Java (intensive agricultural systems), Central Kalimantan (Food Estate site), and Papua (Merauke site). In Central Kalimantan, fieldwork focused on Pulang Pisau and Kapuas districts, documenting peatland degradation and community displacement, in Papua — on large-scale agricultural concessions and indigenous Malind community, in Central Java — on comparing successful cooperative models (semi-structured interviews (N = 47), participatory observation, and photographing).

Historical context: Indonesia's agricultural policy

Indonesia's post-independence agricultural policy shows complex oscillations between developmentalist and liberal paradigms. Sukarno's Guided Economy (1959–1965) attempted state-led agricultural transformation but failed under hyperinflation. Suharto's New Order (1966–1998) achieved the Green Revolution productivity but concentrated land and led to dependency on subsidized inputs. The post-reform period (from 1998 to present) is marked by neoliberal policies and agrarian conflicts.

Table 2. Rice production and harvest area in the Green Revolution period (1970–1990) (BPS)

Year	Harvest area (million ha)	Production (million tons GKG)	Productivity (tons/ha)
1970	8.13	19.32	2.38
1975	8.78	22.34	2.54
1980	9.86	29.65	3.01
1984	10.32	38.14	3.7
1985	10.45	39.03	3.74
1990	10.5	45.18	4.3

The 1997 economic crisis catalyzed the dismantling of peasant protection structures through free market mechanisms: elimination of agricultural subsidies, import liberalization, and land market deregulation, which exposed farmers to volatile global markets with-

out safety nets. Post-Suharto governments (1998–2014) oscillated between protectionist and neoliberal policies. The Yudhoyono administration (2004–2014) attempted gradual reregulation through the Rice Import Restriction (2008) and Land Conversion Moratorium (2012) but only created an institutional vacuum. In the first post-reform decade (2000–2014), food policy suffered from contradictions between political promises and extractive economic reality. Food Law No. 18 of 2012 was a discursive victory for the agrarian movement due to its explicit food sovereignty ideology. However, in practice the state promoted large-scale expansion of oil palm plantations by converting millions of hectares of food land: from 2000 to 2012, the oil- palm land area increased by more than 150% (growth from 4.2 million ha in 2000 to 16.2 million ha in 2024, +290%), while paddy fields expansion slowed significantly (net decline of ~100,000 ha/year since 2014); non-agricultural use shows urbanization growth from 2.5 million ha in 2000 to 8.6 million ha in 2024 (+242%) (Obidzinski et al., 2012).

Table 3. Paddy land vs oil-palm land area (2000–2014) (BPS; World Bank data)

Year	Paddy land (million ha)	Oil-palm land (million ha)	Ratio
2000	11.79	4.16	2.83:1
2005	11.84	5.95	1.99:1
2010	13.25	8.43	1.57:1
2014	13.8	10.95	1.26:1

Joko Widodo administration era (2014–2024) marked the return of state interventions of the “authoritarian modernist” type, which defines food sovereignty as a giant-scale infrastructural development (infrastructure-led developmentalism). This was evident from the “sawah printing” ambitions and Food Estate projects revived in Central Kalimantan, Merauke, and North Sumatra. These projects were continuations of similar failed projects but this time with the National Strategic Project (PSN) status enabling military resource mobilization and budget without strict control. Global panic under the covid-19 pandemic in 2020 was used to force by command a corporate agriculture model: the return of “Stalinist approach” meant that small farmers were considered as obstacles to modernity and were to be absorbed by large corporate and state structures. Domination of non-agricultural ministries in food policies, including active military involvement in land control, shows a shift from agricultural technocratic policy to repressive food security policy. Technical failures, such as rice rotting in Central Kalimantan with extremely acidic peatlands, become tangible evidence of the disregard for local knowledge and technological fetishism typical for the command-center-based agricul-

tural project. Thus, Indonesian agricultural history returned to the point where the state attempts to control nature and man through gigantism, but in a more predatory global environment (Aspinall, 2015; Warburton, 2016; Indra et al., 2024).

Food estate as agricultural Stalinism

The Food Estate program launched in July 2020 represents the pinnacle of Indonesia's infrastructure-centric agricultural policy. Under the covid-19 pandemic, the program aimed at converting 1–2 million hectares in Kalimantan, Papua, and Sumatra into industrial rice production zones. The program allocated Rp 8.7 trillion (\$580 million) for 2020–2024 to achieve 1.1 million tons of annual rice production by 2024, but failed: in Central Kalimantan target — 30,000 ha, achieved 2,000 ha, in Merauke — 1.2 million ha and 5,000 ha, respectively, in North Sumatra — 30,000 ha and 0 (Ministry of Agriculture reports; Tulis et al., 2024; Maskun et al., 2021; authors' fieldwork).

The case study conducted in Central Kalimantan, specifically in Pulang Pisau and Kapuas Regencies, revealed fundamental flaws already at the concept stage. Government targeted 30,000 hectares of land at the site of the former Peatland Project (PLG) that had failed in the New Order era. Main agronomic problem was peatland soil with extremely high acidity (pH 3–4), while rice require pH 5.5–6.5 for productive growth. Scientific warnings of the Soil Research Center (2015) stating that land was unsuitable for large-scale rice production were completely ignored for political ambitions and decisions made top-down, disregarding local communities, reflecting what James Scott called “state blindness” — when the state attempts to simplify complex ecosystems into rigid administrative schemes (Maskun et al., 2021).

The project's implementation became a Great-Leap-style disaster. In October 2020, large tractors were to plant marshy land, but planting immediately failed — rice wilted within weeks due to the acidic soil. In the second attempt, lime was added to adjust pH, but flooding during the rainy season destroyed crops. The third attempt included drainage channels, but they caused peatland subsidence and fires during the dry season. Each failure led to technical fixes rather than questions the fundamental premise. By 2024, the project had abandoned most sites, leaving degraded peatland and displaced communities. Social impacts of this project were highly destructive for Dayak communities: more than 5,000 residents lost access to forests and traditional lands due to the state project claims, which did not create partnerships but attempted to turn peasants into wage laborers under corporate or military control. Community members say that they were never asked for consent (free, prior, and informed consent), and military personnel on agricultural lands created atmosphere that si-

lenced local communities and suppressed their resistance (Wisnaeni, Najib, 2025). Environmentally, the use of peatland for Food Estate project has increased carbon emissions to 3 million tons CO₂. The peat swamp forest deforestation destroyed biodiversity and damaged local hydrological cycles. The peat dried through giant canals became highly vulnerable to burning, creating chronic threat for the region. This damage is permanent, leaving biologically dead landscapes for production targets never achieved (WALHI, 2023).

Merauke (Papua) project takes on even a darker hue with the planned development of 1.2 million hectares of land. Malind indigenous community resisted strongly and loudly, considering this project a form of “food colonialism” threatening their cultural sovereignty. Until now, only about 0.4% of plan was completed, but the indigenous forest damage has been extensive. The Defense Ministry's active involvement shows that food production has been completely subordinated to the national security logic, causing international pressure from the UN Human Rights Council regarding the rights of indigenous communities (Setyo, Elly, 2018; Pailis et al., 2020).

For the objective assessment of whether food projects were emancipatory or extractive-authoritarian, we rely on the scale derived from Scott's (1998) concept of high modernism and Moshe Lewin's (1968) analysis of the Soviet collectivization failure.

Table 4. Stalinist score of the Food Estate project

Characteristics	Score (1–5)	Evidence
Gigantism	5	Target > 30,000 ha; obsession with scale
Coercion	4	No FPIC; military involvement
Ecological disregard	5	Ignoring pH 3–4 of peatland; massive emissions
Speed fetishism	5	Panic-driven; bypassing AMDAL
Symbolic > substantive	4.5	Presidential ceremonies; media narratives
Technology fetishism	4	Large tractors on the unstable peat
Average	4.6/5	Highly Stalinist

Note: the score >4 indicates strong Stalinist characteristics

Average score of 4.6 out of 5 shows that the Food Estate project is almost identical to the failed command agricultural models of Stalin (Virgin Land Campaign) and Mao (Great Leap Forward). Gigantism is evident in obsession with thousand-hectares figures impossible to manage efficiently without cooperatives. Environmental disregard in Indonesia is even more extreme than in the USSR due to fragile peat ecosystems. Symbolic over substantive characteristics is clearly seen when presidential inaugurations were held on land technical-

ly not yet ready, just to create success narratives in the mass media (Shapiro, 2001; Conquest, 1986).

Thus, the Food Estate project was based on the flawed “crisis decision-making”: in March 2020, the cabinet panic led to irrational fears of mass starvation, which were used by certain government factions to lobby capital-intensive projects. Direct presidential intervention broke the standard planning mechanisms at the Ministry of Agriculture and KLHK. Although there were technical objections from soil scientists and some officials, bureaucratic compliance was forced by the PSN status. National mass media strengthened triumphalist narratives, silencing criticism from civil society. These dynamics prove the path dependency — past failures were not turned into lessons but were repeated on larger scale due to rental interests underlying the purchase of equipment and infrastructure (Respatiadi, Tan, 2025; authors’ analysis of the cabinet meetings).

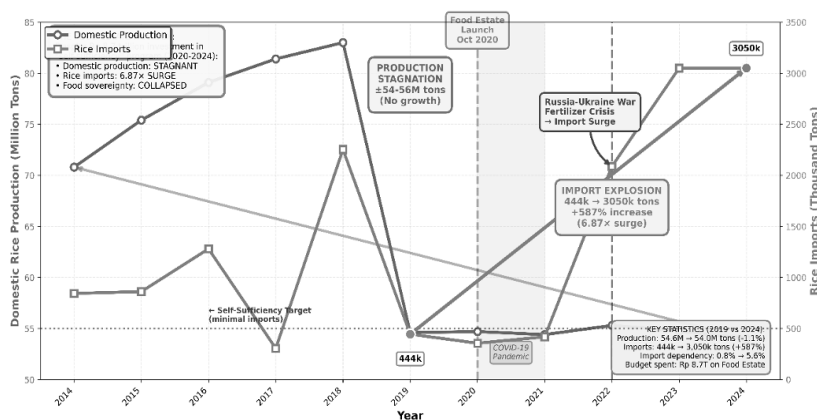


Fig. 2. Domestic rice production (left axis, million tons) remained stagnant despite the Food Estate project investment, while rice imports (right axis, thousand tons) increased; self-sufficiency defined as <1% import dependency in 2024 reached 5.6%, the highest in two decades. The graph shows the Food Estate project paradox: production plateau and explosive growth of imports indicate a complete policy failure

Scissors crisis (2022–2024)

The contemporary failure of the Indonesian agrarian policy is rooted in the phenomenon identified by Nikolai Bukharin a century ago as the “scissors crisis”. To empirically verify this idea, we calculated the Agricultural Terms of Trade Index: unlike the official Government Purchase Price Index (NTP), which can distort realities by including a consumer basket, this index isolates the critical relationship between output selling prices (rice) and the direct costs of production

inputs (fertilizers, seeds, energy). There is a 40% decrease in 2014–2024, with a sharp structural break in January 2022, when input prices rocketed while output prices were suppressed by the Highest Retail Price (HET) policy at the consumer level. This decline was not an ordinary market fluctuation but evidence of the systematic decline in the peasant purchasing power: when input costs increase without equivalent output price compensation, peasants lose production incentives, which poses direct threats to national food security (BPS, 2024; Warr, Yusuf, 2014).

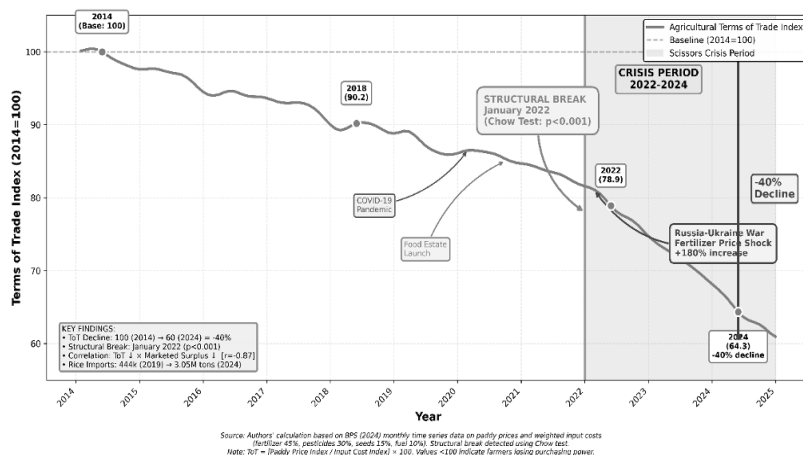


Fig. 3. ToT Index declined from 100 (2014) to 60 (2024) — 40% purchasing power loss; structural break of 2022 marks acceleration of crisis (BPS, 2024)

Main reason for the aggravation of the scissors crisis in early 2022 was Russia-Ukraine war which instantly paralyzed fertilizer exports from Russia and Belarus controlling about 15% of global supply. Indonesia, relying on imports for 30% of fertilizer production inputs (especially potassium and phosphate), was highly vulnerable to this shock. Global fertilizer prices surged up to 180% within less than six months, creating unbearable cost pressure for small farmers with low profitability (FAO, 2023). Global shocks were exacerbated by the national fiscal policy: government reduced fertilizer subsidy budget from Rp 30.2 trillion in 2021 to Rp 22.8 trillion in 2023. Moreover, inefficiencies of the Pupuk Indonesia as the state monopoly blocked the capacity to rapidly increase production. Meanwhile, the Government Purchase Price (HPP) functioning as minimum price for farmers was maintained low to contain urban inflation, ignoring the fact that production costs had surged drastically. The fertilizer subsidy was substantially increased to Rp 54 trillion only in 2024 as a political response before elections, but this was insufficient to close the widening scissors

sors gap that had formed over two years (Ministry of Finance, 2023; ANTARA News, 2024).

Structurally, government was under the urban voter pressure for cheap rice prices, which created “urban bias” — HPP was kept as low as possible so that market rice prices would remain low. On the other hand, large agribusiness lobbies controlling the downstream supply chains rejected any significant HPP increase, because this would reduce processing industry profitability. Consequently, small farmers were forced to bear the input inflation burden alone without adequate price protection.

Nikolai Bukharin warned that if “scissors” opened too wide, peasants would respond by leaving the market, which was proved in Indonesia in 2022–2024 through four main indicators:

- Marketed surplus decline — rice surplus ratio dropped drastically from 75% in 2019 to only 60% in 2024 (there is correlation between ToT decline and amount of rice sold at the market), i.e., the smaller profit farmers receive, the less their desire to supply rice to the national market.
- Retreat to subsistence — “why to sell at a loss?”: interviews with eight farmers revealed emotional yet rational survival strategies. Farmers began reducing rice sales and preferred to store it for household consumption: “Why should I sell at cheap prices then buy rice at the market at expensive prices?”. Many farmers began switching to commodities with better ToT, such as corn or vegetables, which required less inputs or had more flexible selling prices.
- Accelerated land conversion — economic despair made peasants sell their land — paddy fields lose around 100,000 hectares annually for non-agricultural use (Faoziyah et al., 2024). Land is no longer economically profitable and is transformed into housing complexes or factories — de-agrarianization is difficult to reverse, it threatens the future food production basis.
- Import surge: Self-sufficiency failure — macroeconomic consequence of this peasant strategy was rice import surge — from 444 thousand tons in 2019 to 3.05 million tons in 2024 (increase of 6.87 times). Government was to cover domestic production deficits, blatantly betraying the food sovereignty rhetoric (BPS, 2024).

Government recognized the scissors crisis but took only partial steps, failing to solve root problems. Taken steps led to partial recovery — in 2024, the fertilizer subsidy budget was restored to Rp 54 trillion and HPP was raised to Rp 6,500/kg; however, HPP increase of only 18% was not proportional to input costs growth (up to 260% on some components). The mass issuance of import permits became a workaround, further suppressing prices for farmers during the peak harvest. Moreover, government failed to carry out an efficient struc-

tural reform in Pupuk Indonesia industry to reduce fertilizer production costs. Furthermore, there was no systematic effort to strengthen peasant bargaining positions through cooperative sales (Bukharinist model). Most crucially, government did not introduce an automatic ToT stabilization mechanism and continued prioritizing fund allocation for the Food Estate project rather than providing direct support to millions of small farmers. Lack of redistribution of budget funds from large projects to subsidizing product prices shows that the state remains trapped in Stalinist logic, ignoring producer welfare as the main engine of food sovereignty.

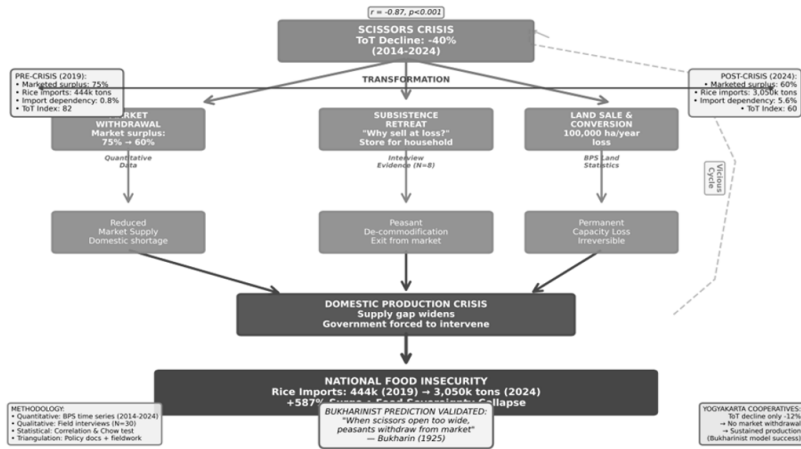


Fig. 4. Five-level causal flowchart from ToT collapse to national crisis: terms of trade deterioration → (2) farmers leaving the market → (3) production decline → (4) food insecurity and import surge → (5) peasant poverty; feedback loops reinforce each level

The cooperative alternative: Bukharinism in practice

Amid the ruins of the Food Estate project centralist ambitions, there are agrarian success pockets that operate according to a completely different logic. Bukharin considered cooperatives not as state control tools but as “schools of socialism” teaching peasants to accumulate collectively without losing autonomy. In Yogyakarta, this model is applied in farmer cooperatives that focus on both production and mastering the value chain from inputs to outputs. Yogyakarta cooperatives of local farmer alliances successfully integrate thousands of small farmers into collective management. Unlike the Food Estate project’s technology forced from above, these cooperatives use “appropriate mechanization” and “collective input management”, which correspond to Bukharin’s argument that transition to modern agri-

culture should be voluntary and gradual. Cooperatives function as shields against “scissors crisis” by wholesale inputs purchase (fertilizers and seeds) to reduce costs and by building independent rice milling facilities to increase outputs’ added value (Beach, Pedersen, 2019; George, Bennett, 2005).

Yogyakarta cooperatives prove that efficiency does not require land gigantism — through management (not land ownership) consolidation, farmers still own land and manage planting, which allows for efficient water use and pest control. Thus, input costs per hectare at the cooperative level are 25% lower compared to independent farmers due to communal purchasing systems, which is a tangible proof of marginal efficiency predicted by Bukharin (organized medium-sized units are more productive than the bureaucratic giant ones).

The study using the Stochastic Frontier Analysis on 68,204 farmers (Sunarwibowo et al., 2024) showed that cooperative members are more efficient than non-members, with 2.1% increase during the rainy season and 3.1% increase during the dry season, i.e., cooperatives have potential to significantly improve agricultural efficiency without large-scale state infrastructural investments.

Under the 2022 global fertilizer crisis, cooperatives did not depend on unspecified government subsidies — they had developed the production of liquid organic fertilizers and created independent seed banks. When the national purchasing power decreased by 40%, for Yogyakarta cooperative members — only by 12%. Cooperatives served as “price stabilizers” by purchasing farmers’ rice at prices above market during peak harvest and by storing rice in collective warehouses for sales when prices grow — this is the mechanism explicitly proposed by Bukharin to maintain the rural economic balance (Kusumawardani et al., 2021).

In Yogyakarta, planting is discussed at members meetings based on the technical coordination of field needs, without “command” from Jakarta. This success challenges the government narrative that Indonesian small farmers are “inefficient” and need to be replaced by corporations. On the contrary, empirical data show that with proper institutional support small farmers are far more reliable risk managers than ministry bureaucrats (Tulis et al., 2024).

Table 5 summarizes differences between the Bukharinist model (Yogyakarta) and the Stalinist model (Central Kalimantan) based on 2022–2024 field data: the Food Estate project failure was not caused by funding shortage but by fundamental institutional mistakes. Yogyakarta model proves that food sovereignty can be achieved without destroying ecology or marginalizing indigenous communities — by inclusive rural capital accumulation (Maskun et al., 2021; Faoziyah et al., 2024).

Table 5. Efficiency of two agrarian models

Indicator	Yogyakarta	Central Kalimantan
Scale	50–200 ha per unit	30,000 ha planned
Investment	Rp 50 million/ha	Rp 500 million/ha
Productivity	6.5 tons/ha	2.15 tons/ha (failed crops)
Cost per ton	Rp 4.8 million	Rp 349 million
Farmer participation	Democratic governance	Zero consultation
ToT resilience	–12% (2022–2024)	Not applicable (project abandoned)
Environmental impact	Agroecological practices	3M tons CO ₂ ; peat destruction
Sustainability	High (continuous 10+ years)	Failed within 2 years

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If the cooperative model outperforms state gigantism on efficiency, resilience and equity, why has it remained largely confined to Yogyakarta and similar Java-Bali contexts rather than spread across Indonesia’s rice-producing provinces? Because structural transformation requires more than just successful local experience. Four interrelated barriers explain the replication gap. First, *institutional path dependency*: Yogyakarta’s cooperatives benefitted from the pre-existing social capital rooted in the Javanese *gotong royong* tradition and history of functional Village Unit Cooperatives (KUD) — these conditions were largely absent in outer island provinces where colonial concession systems and post-independence transmigration had undermined collective institutional foundations (Mahoney, 2000). Second, *political economy barriers*: in provinces with active Food Estate concessions or plantation contracts, rental interests in machinery purchase, infrastructural contracts and import quotas actively hinder cooperative development, reflecting what Borrás and Franco (2012) call the “counter-agrarian reform”. Third, *agro-ecological incompatibility*: Yogyakarta’s flat, well-irrigated paddy plains make collective water use and synchronized harvesting logistically simple, which is difficult for peatlands in Kalimantan and highland shifting systems in Papua without models adapted to local ecological realities rather than “blueprint transfers”. Fourth, *lack of the state scaling policy*: cooperatives’ success developed through grassroots self-organization with minimal central support; the state has not institutionalized these lessons, because local solutions resist legibility and standardization of the high-modernist development paradigms (Scott, 1998).

The Bukharinist alternative as a roadmap to food sovereignty

This research has systematically proven that Indonesia’s Food Estate project was not a technological or administrative but ontologi-

cal failure rooted in the forced agricultural Stalinist logic, according to which small farmers are “inefficient” and “outdated” producers that have to be replaced by capital-intensive corporations controlled from the center. This failure has two dimensions: economically, the Stalinist model creates marginal inefficiency destroying the state budget. Rice production cost within the Food Estate project reaches Rp 349 million per ton, which manifests Bukharin’s “giant bureaucratic waste”. Sociologically, this project aims at “primitive accumulation” by seizing Dayak and Papua indigenous communities’ living spaces. The neglect of agronomic science and local knowledge was not just an accident but an integral part of systems that prioritize political control and symbols of progress over real sustainable productivity.

As fundamental antithesis, we propose a roadmap based on Bukharin’s economic model, the core of which for Indonesia is recognition that food independence cannot be achieved through coercion but only through voluntary cooperation between the state and peasants. Bukharin argued that transition to modern agriculture should be gradual and based on organic intensification rather than forced mechanization leaps on marginal lands. This model demands a perspective shift: small farmers should be considered not as development objects but as sovereign economic actors, and cooperatives should function as “golden bridges” providing individual farmers with the benefits of economies of scale (such as machinery and market access) without making them lose land rights. This is an inclusive development model with capital accumulation in rural areas for the prosperity of local communities, which in turn creates strong domestic market for national industry. This is what Bukharin called “growing together toward socialism” — a highly relevant concept for saving Indonesian peasants from both neoliberalism and Stalinism traps.

The first necessary step is to honestly admit failure: government should impose a moratorium on all Food Estate project’s funding and expansion and spend remaining funds on restoration of territories. Independent environmental audit is needed to map damage on Central Kalimantan peat domes and Papua indigenous forests and then to return land to indigenous and local communities. However, this return should be accompanied by the state compensation — technical support for peatland-friendly agricultural systems (such as paludiculture) and non-timber forest economies. This restoration is not only about environment but also about restoring the peasant dignity sacrificed for the state statistical obsession.

The second strategic recommendation is to introduce an Automatic ToT Stabilization mechanism: the state should stop using the Government Purchase Price (HPP) as a static instrument changed every few years. We need an indexation system in which the farmer paddy HPP will rise automatically if input prices rise (fertilizers, fuel, cost of living). This step will ensure that farmers always get fair profit margins, i.e., incentives to continue farming. By ensuring that “price

scissors” never affect them, the state indirectly suppresses the rate of paddy fields conversion. Farmers will not sell their land if farming provides stable and descent income. This is a form of the smart market intervention — “planning from below” that supports capital accumulation by small farmers.

The third pillar is investment shift from “giant sawah printing” to cooperative industrialization. The state should finance the purchase of post-harvest technologies by every rice production center managed by farmer cooperatives, not by large corporations or military. This infrastructure includes dryers, rice milling technology, and independent logistics systems. By mastering processing and distribution, farmers no longer sell dry rice (GKP) at cheap prices to middlemen but sell quality rice on consumer markets. This will break exploitation chains in rural areas. Cooperatives should also be encouraged to independently produce organic inputs to reduce dependence on imported chemical fertilizers, which is the reason of Indonesia’s current economic vulnerability.

The transition to this Bukharinist model will face major obstacles from economic-political elites benefiting from the Food Estate project. Rental interests in large-scale agricultural machinery sales, infrastructural contracts and rice imports quotas are the main enemies of this reform. However, history shows that extracting agricultural models are never politically or economically sustainable. We need a strategic alliance between peasant movements, scientists and progressive officials. The “food sovereignty from below” should become a mainstream in the national development discourse, and the public should demand food budget transparency and reject agricultural sector militarization. Without strong democratic control, food policy will remain an instrument of accumulation for elites. Indonesia’s food future depends not on giant tractors destroying peatland but on millions of peasant families cultivating their land with love and local knowledge. The failure of the Food Estate project is the death knell for impersonal and destructive Stalinist development model. Adopting Bukharinist alternative means choosing more humane, just and scientific path, balancing the national production needs and small producers’ welfare. By stabilizing terms of trade, strengthening cooperatives and respecting ecological boundaries, Indonesia will ensure both rice self-sufficiency and prosperous, educated and autonomous peasant class which is the essence of independent agrarian development.

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Discussion: Implications for theory and policy

Bukharin developed a crucial perspective for eco-Marxism by emphasizing that the human–nature synthesis cannot be forced through bureaucratic command but should be achieved through rural economic stability. Saito’s (2017) critique of the need for eco-socialism sen-

sitive to critical agrarian studies finds its equivalent in Bukharin's idea of "dynamic balance" and extends into the current degrowth debates, where peasant autonomy and local rural capital accumulation are viewed as mechanisms to resist the destructive extractive capitalism expansion.

The analysis of the Food Estate project failure and Yogyakarta cooperative success proves that the dichotomy of pure state intervention and pure market liberalization is false. State intervention is needed, but its type is far more important than amount of funding. The Stalinist state acts as a peasant autonomy predator, while the Bukharinist state — as a collective infrastructure facilitator. Cooperatives represent the "third way", in which market efficiency meets social justice through community control: agrarian transformation is impossible through command control — only through domains providing space for peasant agency to self-organize (Anderson et al., 2019). These findings revitalize historical materialism by rejecting linear determinism, according to which all development paths end with large corporate consolidation. Indonesian agrarian history shows a "multilinear evolution", i.e., peasant agency and local political contingency can create alternative paths outside the grand state schemes. This proves Bernstein's (2010) idea that class dynamics in agrarian change are always influenced by peasant resistance and adaptation to capital and state pressures, which determines diverse development directions.

Indonesia represents a "middle case" in Southeast Asia. Compared to Thailand's market-oriented rice policy or Vietnam's *đổi mới* radical de-collectivization of peasant households, Indonesia in the Food Estate project's era experienced a return to centralism. There is a sharp contrast with Malaysia's FELDA scheme which, despite being top-down, succeeded in ensuring income stability through global commodity integration. However, the agrarian reform failure in Philippines is a reminder that without political will to distribute land any cooperative model will face difficulties in development. Today Indonesia is torn between ambitions to become an export power like Vietnam and agricultural backwardness risks like Philippines.

Indonesian experience has strong parallels with the MST cooperative movement in Brazil, proving that small farmers can manage large-scale organic soybean production if supported by strong class organization. In Mexico, the ejidos system failure due to neoliberalism (Castellanos-Navarrete, 2021) teaches Indonesia a valuable lesson: without price protection by the terms of trade, land ownership is insufficient for sovereignty. On the contrary, Cuba's post-Soviet transition to urban agroecology shows that under energy crisis the Bukharinist model based on communities is far more sustainable than energy-intensive industrial systems. China provides even most relevant comparison: the Household Responsibility System introduced in 1978 essentially followed the Bukharinist logic, giving autonomy to small farmers. However, recent re-collectivization efforts through the

“Enterprise Dragon Head” confirmed the tension between industrial productivity and equity. Indonesia seems to imitate China’s state-corporation model without its bureaucratic discipline, which means inefficiency without growth.

Therefore, we offer the following policy recommendations by stages:

- Immediate (2025–2026): stop political panic, stop all new expansions of the Food Estate project to prevent further budget losses, redistribute Rp 10 trillion from the giant food infrastructure funds to 500 pilot rice-producing cooperative projects, return fertilizer subsidy to adequately level and apply the automatic ToT stabilization mechanism based on farmers’ real production cost index.
- Medium-term institutional reform (2027–2030): scale up cooperative program to reach 2,000 units across Indonesia with the focus on mastering post-harvest technology; reform the Pupuk Indonesia to eliminate its monopoly and give permits to farmer cooperatives to independently produce and distribute organic fertilizers, ensure legal recognition of farmer organizations as partners of the state in agrarian decision-making.

Long-term systemic transformation (after 2030): aim for 10,000 active cooperatives controlling at least 20% of the national food production and market distribution, institutionalize the automatic ToT adjustment mechanism to protect farmers from future global shocks, create independent regional food systems (each region supports its local food diversity, ceasing to be just a buffer for centralist national markets).

To implement this roadmap, we need to start from progressive local governments (such as in Yogyakarta) to prove the possibility of success (evidence-based policy), to form broader coalition between farmer organizations, urban consumers wanting healthy food, environmental activists and progressive bureaucrats — to fight against oligarchs who profit from extractive projects. Only the collective political pressure can make the Indonesian agrarian development reorient to those who feed the nation — small peasants.

Our comparative analysis would be incomplete without the third model that has affected agricultural production in the Global North and increasingly the Global South — the corporate agribusiness complex (agroholdings, vertically integrated firms and contract farming systems). In the United States, 4% of farms produce 66% of total agricultural output (MacDonald, Hoppe, 2017); in Russia, such agroholdings as Miratorg and EkoNiva manage over 30 million hectares with measurable productivity gains in poultry and grain (Visser, Mamonova, Spoor, 2012); in Brazil, agribusiness has made the country the world’s largest soybean exporter (Oliveira, Schneider, 2016), i.e., this is a globally dominant institutional form (Clapp, Fuchs, 2009). Corporate agribusiness already operates in Indonesia: Charoen Pok-

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phand Indonesia controls approximately 50% of the national broiler market through integrated contract farming (Dyck, Prasetyo, 2010), while five major corporate groups manage about 40% of the oil-palm planted area (Cramb, McCarthy, 2016). These models demonstrate capacity for capital accumulation and export productivity in their sectors.

However, three structural features make this model unsuitable for the production of staple foods in Indonesia. First, consolidating rice production at agroholdings would require displacing tens of millions of small households, which is politically and socially inexpedient when farmers constitute 30% of the electorate. Second, contract farming in staple food production typically had negative consequences: asymmetric bargaining reduced farmers' margins while concentrating profits upstream and reproducing the scissors crisis through market mechanisms rather than the state price controls (Oya, 2012). Third, Indonesia's oil palm complex (the closest analogue) demonstrates extensive smallholder dispossession, peatland destruction and export orientation that structurally undermine Indonesia's national food sovereignty (McCarthy, 2010; Cramb, McCarthy, 2016). The Food Estate project was a state-led agroholding experiment; its failure is the strongest empirical argument against applying this model to the Indonesian rice industry. Thus, the Bukharinist cooperative pathway is not a universal opposition to corporate agribusiness but a structurally appropriate model for the specific conditions of Indonesia's smallholder-dominated staple food sector.

Conclusion

The application of the Bukharinist political economy lens to the contemporary Indonesian agricultural policy allows to make the following conclusions. First, the Food Estate program constitutes agricultural Stalinism through gigantism, coercion, environmental destruction and peasant subordination, scoring 4.6 out of 5 Stalinist characteristics while producing only 4,300 tons of rice at catastrophic costs. Second, the deterioration of the agricultural terms of trade by 40% (2022–2024) proves Bukharin's scissors crisis (farmers responded by leaving markets and reducing production). Third, cooperative alternatives show viability, with Yogyakarta cooperatives achieving 2.1–3.1% efficiency gains while maintaining social cohesion.

Thus, the 1920s agrarian debates in the Soviet Union remain relevant for understanding the Global South's development dynamics in the 21st century, since paths to modernity are diverse. State intervention is absolutely needed in food sector, but the type of intervention is far more determining than funding. State functioning as a cooperative facilitator and price stability guardian (Bukharinist model) is far more effective than the state functioning as a giant landowner

and dictator (Stalinist model). Cooperatives are not artifacts but viable “third ways” for integrating millions of small farmers into today’s economy without destroying their autonomy or ecosystems.

Indonesia faces an existential choice similar to the Soviet Union in the 1920s. The Stalinist path offers a self-sufficiency mirage based on mega-projects, forced extraction and gigantism, which result in production failure, fiscal waste and indigenous community displacement: Stalin’s collectivization caused great famine which killed 7 million people and created chronic inefficiencies that paralyzed the Soviet economy until its collapse. The Bukharinist path offers prosperity based on cooperatives, fair terms of trade stability and gradual sustainable development: since 1978, such reforms in China have successfully lifted more than 300 million people out of rural poverty. The question for Indonesia in 2026 is whether policymakers will learn from past failures or will continue repeating Stalin’s mistakes for short-term rental benefit. Bukharin was executed in 1938 as an “enemy of the people”, but history has restored his name as an architect of humane development. Bukharin’s ghost now haunts the barren peatlands of Central Kalimantan and paddy fields of Java, asking which path Indonesia will choose.

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Аграрная политика Индонезии: сталинский государственный гигантизм или бухаринское кооперативное хозяйство

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Аннотация. В статье системный провал индонезийской программы «Продовольственные поместья» (2020–2024) В статье рассмотрен системный провал через аналитическую призму советских аграрных дебатов 1920-х годов между Николаем Бухариным и Иосифом Сталиным. Авторы отмечают критический парадокс: государственная сельскохозяйственная политика продолжает терпеть неудачи, и Индонезия импортирует рекордные объемы риса, несмотря на 33 миллиона мелких фермеров. В исследовании применялись смешанные методы и расширенное кейс-стади, чтобы рассчитать Индекс условий торговли сельскохозяйственной продукцией для эмпирической проверки гипотезы о наличии "ножниц цены" (50 государственных документов и полевые исследования в трех провинциях). Сделаны следующие ключевые выводы: (1) проекты продовольственных поместий получили оценку 4,6 из 5 на основе сталинистских характеристик (гигантизм, принуждение, игнорирование экологических проблем), производя всего 4300 тонн риса по цене 349 миллионов индонезийских рупий за тонну против рыночной цены в 6 миллионов; (2) условия торговли сельскохозяйственной продукцией ухудшились на 40% в 2022–2024 годы, что привело к уходу фермеров с рынка и увеличению импорта риса с 444 тысяч тонн (2019) до 3,05 млн (2024); (3) успешные кооперативные модели показали эффективность в 2,1–3,1% и не теряли производительность

в кризисные периоды. Исследование теоретически подтверждает применимость бухаринской политической экономики для аграрного анализа XXI века, доказывая ее актуальность за пределами советской историографии, и предлагает трехступенчатую дорожную карту для реализации политики, в которой приоритет отдается расширению прав и возможностей мелких фермеров, стабилизации условий торговли и кооперативной индустриализации — как альтернативам государственному гигантизму и корпоративному сельскому хозяйству.

Ключевые слова: продовольственный суверенитет, аграрная политика, условия торговли, кооперативы, Индонезия, бухаринская критика, захват земель, крестьяноведение, продовольственное имение, мелкое фермерство, государственное вмешательство

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