
Completing Policies on Sustainable Development of Orange Value Chains in Nghe An Province

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Abstract

Cam Vinh, a specialty certified as a geographical indication of Nghe An, has plummeted in area and productivity, revealing policy shortcomings in maintaining the value chain. This study examines provincial literature, industry reports, and international evidence using a value-chain-based policy analysis framework and upgrade theory. The results showed fragmented planning, weak geographical indication governance, limited processing and logistics, underdeveloped linkages, and inadequate digital trade promotion. The paper proposes integrated value chain planning, modern geographical indication management, incentives for processing and by-products, contract-based farmer-business linkages, and digital marketing embedded in OCOP to address these gaps. These findings contribute to both practical policy design and literature on sustainable agrifood value chains.

Keywords: Cam Vinh, value chain, policy, sustainability, geographical indication.

1. Introduction

In the current trend of agricultural integration and development, the value chain approach effectively increases added value, improves competitiveness, and ensures sustainable development. According to Porter (1985) and Kaplinsky & Morris (2001), the value chain is not only a succession of production, processing, distribution, and consumption, but also a system that brings actors together through policies, institutions, and linkage mechanisms (Kaplinsky et al., 2001; ME Porter, 1985).

In Vietnam, the agricultural restructuring strategy has affirmed that value chain development is the central orientation, reflected in national programs such as building new rural areas, sustainable poverty reduction, and socio-economic development in ethnic minority and mountainous areas. However, the implementation practice in many localities still has many inadequacies. The case of Nghe An orange trees, especially the Cam Vinh brand, is a typical example. Protected by the National Office of Intellectual Property of Vietnam as a geographical indication "Vinh" since 2007, Cam Vinh was once considered a symbol of agricultural products in the North Central region. However, from 2020 onwards, the area and output have declined seriously, and the area has deteriorated to more than 60% of the total orange growing area of the

whole province of Nghe An. This not only affects farmers' income but also threatens the reputation of the national specialty brand. The reason is not only technical factors or epidemics but also reflects limitations in value chain development policies. The planning of raw material areas is still spread out (Nghe An Provincial People's Committee 2016), management of ineffective geographical indications (Nghe An Provincial People's Committee 2017),(Zhi 2023), key product policies have not focused on processing and logistics (Nghe An Provincial People's Committee 2021a), the linkage mechanism is still being tested (Nghe An Provincial People's Committee 2024)(Nghe An Provincial People's Committee 2025), while trade promotion has not adapted to e-commerce (Zhi 2023).

Completing policies is an urgent requirement to sustainably develop Cam Vinh's value chain. This study aims to analyze the current situation, identify limitations, and propose policy solutions, both contributing to the development of the value chain, preserving the Vinh orange brand, and providing scientific arguments for the local agricultural development strategy.

2. Research methods

2.1. Approach

The paper applies a policy analysis method focusing on evaluating the policy system for developing the orange value chain in Nghe An province. This approach allows for identifying institutional gaps and makes recommendations for adjustments to sustainable development. An analytical framework based on value chain theory (ME Porter, 1985), (Kaplinsky et al., 2001), in combination with chain upgrade frameworks in agriculture in developing countries (Trienekens, 2011),(Lee, Gereffi, and Beauvais, 2012).

2.2. Data collection methods

Research using secondary data includes:

Documents and policies of the People's Committee of Nghe An province related to fruit and orange trees-specialized reports of state agencies related to the fruit tree value chain.

Reports by international organizations on geographical indications, sustainable development, value chain policies, and the integration of inclusive factors in value chain development.

Domestic and international scientific research related to the value chain, especially the value chain of fruit trees in Tuyen Quang, Mekong Delta, and Ben Tre.

2.3. Processing and analysis methods

The processing and analysis methods used in the paper include:

Descriptive statistics: exploiting data on area, yield, and output of Nghe An oranges in 2015–2023 to identify fluctuating trends.

Content analysis: after being collected, read, and compared with each other, to draw appropriate conclusions about value chain policies.

Policy comparison: compare Nghe An policies with different localities to identify effective policy models that can be applied.

Integrated analysis framework: based on the four pillars of the agricultural product value chain (planning – production – processing/logistics – consumption/promotion), combined with policy factors (institutions, finance, geographical indication governance, linkage support) to assess the completeness of the Vinh orange value chain policy system.

3. Literature Review

The value chain includes organizational and coordination activities to create value from input to final consumption. (ME Porter 1985). Upgrading the value chain is a core factor in increasing the competitive value of products, thereby improving income for farmers. (Kaplinsky et al. 2001). For developing economies, infrastructure, chain governance, institutional barriers, and quality and cost are important variables in analyzing geographical indication-specific products (Trienekens, 2011). Moreover, the quality management factor accompanied by traceability will vigorously promote the creation of sustainable socio-economic value of rural areas (FAO, 2018). With the view of developing modern agricultural product value chains, food quality and safety standards (VietGAP/GlobalGAP) are increasingly decisive for chain development and market access (Lee, Gereffi, and Beauvais 2012). For actors participating in the value chain, public policies have a role in stimulating private investment, financializing infrastructure, and reorganizing the chain structure (World Bank 2016, 2022). The linkage factor between actors also makes an important contribution to the development of the value chain. FAO has suggested a contractual mechanism in the linkage between farmers and enterprises to reduce transaction costs, stabilize supply for enterprises, help farmers access input factors and output markets, share benefits and risks, and strengthen supervision to pull farmers into the modern value chain (FAO, 2020). Policy factors are also reflected through the integration of climate change factors into chain policy making, gender factors in project selection criteria, budget allocation analysis, and technical assistance, as well as institutional mechanisms to strengthen adaptation and reduce inequalities in the chain (FAO, 2020).

In terms of inclusiveness and chain organization. To measure chain policy outcomes, Schoneveld (2023) proposes a "farmer-created value" framework in which farmers are beneficiaries and co-creators throughout the entire network through livelihood selection, resource allocation, and household strategies. Thereby providing a basis for the design of value chain policies in the direction of acknowledging and strengthening the proactive role of farmers, establishing a mechanism to help them leverage and transform value (Schoneveld & Weng, 2023). Policies that cover the value chain help farmers improve their resilience to shocks. The higher the level of participation in the chain, the more income losses can be minimized during the pandemic, covering the chain to help farmers stand firm against short-term shocks (Manda & Miti, 2024).

Studies on citrus fruit tree value chains in localities in Vietnam are also quite rich. Research on the orange value chain in Tuyen Quang province has clarified the structure of agents, profit margins by stage, and post-harvest bottlenecks (Thi Dien & Anh Dao, 2018). The research results show that the Tuyen Quang orange chain is still in the state of raw materials, fresh consumption, disproportionately distributed profit margins, and the most significant "bottleneck" lies in the post-harvest stage, seasonality, lack of investment, and value chain linkage. It can be a

reference framework for the Vinh orange value chain in chain linkage, post-harvest infrastructure investment, standardization and improvement of product quality, branding and geographical indications, institutional support, and credit for the sustainable development of the orange value chain. With Ben Tre green-skinned pomelo, a substantial competitive advantage comes from processing activities (Van Hoang, 2015)

The mango value chain has quite a big difference between the chain aimed at the domestic market and the export chain, this difference includes the chain structure, chain size and related policies, but in general, these chains have problems with quality and price (Truong & Sidique, 2022), disproportionate distribution of benefits, farmers are vulnerable to market fluctuations, including the export market (Truong & Sidique, 2022). It is necessary to intervene in state policy to develop the chain.

Studies show that there is a prominent gap in the absence of a policy model that integrates links: (i) planning of raw materials–logistics–processing areas; (ii) management of geographical indications based on digital retrieval; (iii) a mechanism for association of agricultural contracts; and (iv) digital trade/agritourism promotion. This article contributes by consolidating the above pillars in a sustainable value chain framework for Cam Vinh.

4. Research results: Current status of policies for the development of the value chain of Nghe An orange tree

From 2005 to 2025, the government of Nghe An province issued many documents to support the development of orange trees, considering this to be one of the main fruit trees. However, implementing the policy reveals many limitations, making the Cam Vinh value chain not fully promote its inherent potential. *Firstly*, about the planning of raw material areas. The planning for citrus tree development in Nghe An province to 2020, with a vision to 2030, has clearly defined the orientation for the formation of concentrated production areas in Quy Hop, Nghia Dan, Anh Son, and Yen Thanh (Nghe An Provincial People's Committee 2016). However, the planning is still spread, lacks stability, and is not closely associated with processing zones and market planning (there is no agricultural contract or close association between cooperatives and enterprises). As a result, the orange planting area expanded too quickly in the period 2010-2018, but there was no control over the quality of varieties and diseases, leading to a large-scale degradation of orange orchards from 2020 onwards (Thu et al., 2018; Zhi, 2023). This limitation is similar to the results of a study on the mango value chain in the Mekong Delta, where planning is not linked to processing and logistics capacity, making farmers vulnerable to market fluctuations (Le & Luan, 2023). Thus, this planning focuses on expanding the area without being associated with downstream links in the value chain (processing, logistics, output market). This one reflects the gap in applying the "value chain upgrading" approach of Trienekens (2011) – The area increases rapidly, but the added value is not sustainable.

Secondly, about quality management and geographical indications. The grant of the geographical indication protection title "Vinh" for orange products by the National Office of Intellectual Property since 2007 and the promulgation of the Regulation on management and use laid the

foundation for the protection and marked an important step in building the Vinh orange brand (Nghe An Provincial People's Committee 2017). However, when implemented in practice, there are still many inadequacies. Some production households do not renew the certificate of the right to use geographical indications (Huang, 2023), trademark abuse still occurs (2024 only), causing the reputation of the Cam Vinh brand to be adversely affected. This shows that geographical indications have not become value-added tools as FAO studies have confirmed (FAO, 2018). At the same time, it reflects the gap in the product quality monitoring mechanism and sanctions for handling violations (Nghe An Provincial People's Committee 2017).

Thirdly, about the policy of developing key agricultural products. The project to develop key agricultural products in Nghe An province in 2021-2025, the vision has put "fruits (oranges, grapefruits, pineapples)" into the priority group for development. The project emphasizes linking production with processing and consumption along the value chain (Nghe An Provincial People's Committee 2021b). However, the current investment structure is still inclined towards raw material production. At the same time, deep processing, preservation, and cold logistics have not been given proper attention, making the added value low, and orange growers are vulnerable to market fluctuations. Chi 2023, (Linh 2023). This result is clearly different from the Ben Tre Green Skin Pomelo model, which has successfully upgraded and processed (Van Hoang, 2015).

Fourth, we will discuss the mechanism of linking the value chain. Nghe An province has institutionalized the linkage mechanism through the issuance of Decision No. 16/2024/QD-UBND and Decision No. 70/2025/QD-UBND, stipulating the criteria for selecting production linkage projects associated with the consumption of agricultural products along the value chain (Nghe An Provincial People's Committee 2024; Nghe An Provincial People's Committee 2025). This is necessary to encourage the cooperative – enterprise – farmer model. However, the number of linkage models in orange production is still minimal, mainly experimental, reflecting the gap between policies and the practical organizational capacity of cooperatives and enterprises. One of the reasons is that the criteria are still general, not reflecting the characteristics of citrus trees, such as strict requirements on Viet GAP, Global GAP, or electronic traceability.

Fifth, on trade promotion and the OCOP program. Activities such as the Cam Vinh Consumption Connection Forum in 2021 and 2022 have initially created a forum for exchange between businesses, cooperatives, and managers. At the same time, the inclusion of Cam Vinh in the OCOP program has contributed to the wide promotion of the brand. However, these activities are not frequent, fragmented, lack a binding mechanism through long-term contracts, and have not made the most of the e-commerce channel to expand the market (Winter 2022). Meanwhile, international experience shows that promotion through e-commerce and agritourism is essential to maintaining the sustainability of agricultural value chains (FAO, 2020; Fujimoto, 1992b).

Thus, the current policy system has formed a basic legal framework for developing Cam Vinh's value chain, from planning and managing geographical indications to orientation of key products, association institutions, and trade promotion. However, there are still many

weaknesses: inconsistent planning, ineffective management of geographical indications, policies for developing key agricultural products that are more about production than processing, a new value chain linkage mechanism at the experimental stage, and trade promotion is still a movement. These inadequacies are the main reasons why Cam Vinh's value chain has not achieved sustainability and high competitiveness in the market.

5. Discussion

Analysis of the current situation of Cam Vinh value chain development policies shows that the institutional system has made important strides. However, many inadequacies remain regarding synchronization, effectiveness, and the ability to create added value. First is the gap between planning and implementation. The planning of Nghe An's orange raw material area clearly defines the area and the development area. However, the rapid expansion of production and lack of connection with processing technology make it easy for the value chain to fall into the "excess output, lack of output" (Nghe An Provincial People's Committee 2016). This phenomenon is similar to the limitations in the Mekong Delta mango chain, where planning is not linked to logistics, leading to the risk of oversupply (Le & Luan, 2023). This proves that the policy must shift from production to full-chain integration planning. Secondly, the quality and brand management institutions are still weak. The geographical indication "Vinh" is an important tool, but the enforcement mechanism is limited. FAO's research shows that geographical indications are only compelling when associated with electronic traceability systems and strict control mechanisms (FAO, 2018). Lessons from Tuyen Quang orange, which combines VietGAP with supermarket and e-commerce channels, demonstrate that effective quality management can significantly expand market value (Thi Dien & Anh Dao, 2018). Third, key policies and chain linkages have not achieved the expected effect. Oranges are included in the list of key agricultural products (Nghe An Provincial People's Committee 2021b), which shows the proper orientation. However, it does not create motivation for the post-harvest and deep processing stages. Recent decisions on the criteria for selecting associated projects (Nghe An Provincial People's Committee, 2024) only created a procedural corridor, while international experience, such as the Japanese OVOP movement, emphasized the role of supporting local finance, marketing, and creative development (Fujimoto, 1992). Therefore, for the chain linkage policy to be effective, Nghe An needs to supplement a mechanism to encourage businesses to invest in processing and commercializing by-products. Fourth, trade promotion is still fragmented. Forums and fairs promoting Vinh oranges are still short-term events, and a long-term contract mechanism has not been built. Meanwhile, experience from OCOP Quang Ninh and international studies indicate that e-commerce, agritourism, and supermarket links are essential tools to ensure the sustainability of the value chain (Fujimoto, 1992a; Long et al., 2018),(Hoang Thanh Long, Hao, and Lebailly, 2018),(Hoang, 2021; Schumann, 2021).

Summarizing the above analysis, it can be affirmed that the main limitation of the Nghe An policy lies in the fact that an integrated policy ecosystem has not been established, in which the pillars (planning, quality, linkage, promotion) are implemented synchronously and effectively supervised. International comparisons show that for sustainable development, policies do not only stop at promulgating documents but also need strong institutional capacity, interdisciplinary

coordination mechanisms, and substantive participation of communities and businesses in the entire value chain.

6. Conclusions and policy implications

This study shows that the policy system of Nghe An province for orange trees, especially Vinh oranges, has achieved specific results in creating a legal framework and orienting the development of the value chain. The initial legal documents laid the groundwork for reorganizing production, brand protection, and promoting linkages. However, the policies still have limitations, not fully integrating the stages from planning, production, processing, to consumption, leading to the unsustainable value chain of Vinh oranges. Based on the above analysis, the article suggests some policy implications to develop the Vinh orange value chain in the coming time: *Firstly*, upgrading planning policies in the direction of value chain integration. Citrus tree planning must be closely associated with processing, logistics, and market capacity, avoiding expanding the area beyond consumption. Requiring Nghe An province to develop an interdisciplinary plan instead of focusing only on cultivation. *Second*, strengthen quality and brand management. The management mechanism of the "Vinh" CD needs to be modernized through the application of an electronic traceability system, strict control of certification renewal, and linkage with international standards such as VietGAP/GlobalGAP. It helps to improve brand reputation and increase market value. *Third*, investment in processing and by-products should be encouraged. Lessons from Ben Tre Green Skin Pomelo show that developing deeply processed products and by-products can significantly increase the chain's value. Nghe An needs to have a financial incentive mechanism, attract businesses to invest in processing oranges into juices and essential oils, and support industrial products. *Fourth*, the Nghe An People's Committee should implement the policy of chain linkage in the direction of substance. Instead of just stopping at the criteria and procedures for selecting projects, the province needs a mechanism to encourage long-term contracts between enterprises, cooperatives, and farmers, support chain management skills training for cooperatives, and establish an effective monitoring system. *Finally*, the Nghe An People's Committee should promote digital trade and OCOP cohesion. Cam Vinh must be promoted more strongly through e-commerce, agricultural tourism, and OCOP programs, building a sustainable consumption channel.

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