

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

A. Overall Conclusions

This dissertation examined agricultural transformation and its implications for the sustainability of rural livelihoods in the Vietnamese Mekong Delta following the implementation of Resolution No. 120/NQ-CP. Guided by three research objectives and employing a convergent mixed-methods approach, the study integrated quantitative evidence from household surveys and econometric analyses with qualitative insights obtained through key informant interviews and focus group discussions. Rather than examining individual dimensions of agricultural transformation in isolation, the dissertation adopted an integrated analytical perspective linking policy interventions, livelihood assets, agricultural transformation pathways, and sustainable livelihood outcomes. The findings provide new empirical evidence regarding how agricultural transformation is evolving under the policy framework of Resolution 120 and how this transformation contributes to climate-resilient rural development.

The principal conclusions of the dissertation are presented according to the three research objectives.

1. Conclusions Related to Objective 1

The first objective sought to assess the current status of agricultural transformation and its perceived contributions to sustainable rural livelihoods following the implementation of Resolution 120.

The findings demonstrate that agricultural transformation has become a multidimensional process extending beyond changes in agricultural production systems. Five major transformation pathways were identified, namely land-use transformation, ecological transformation, livelihood diversification, digital transformation, and value-chain transformation. These pathways were adopted to varying degrees across the three ecological regions of An Giang Province, reflecting differences in environmental conditions, livelihood resources, and institutional support. Importantly, more than half of the surveyed households simultaneously adopted three or more transformation pathways, indicating that agricultural transformation increasingly involves integrated livelihood adaptation rather than isolated technological change.

The perceived impacts of agricultural transformation were consistently positive across the three dimensions of sustainable livelihoods. Farmers reported improvements in economic

performance through enhanced productivity, diversified income opportunities, and better market access. Social benefits included increased technical knowledge, stronger participation in farmer organizations, greater collaboration among stakeholders, and improved adaptive capacity. Environmental improvements were reflected in reduced chemical input use, more efficient water management, enhanced climate resilience, and greater awareness of ecological farming practices. These findings suggest that Resolution 120 has successfully initiated a transition toward more sustainable and climate-resilient agricultural development by encouraging farming systems that are better aligned with ecological conditions and long-term livelihood sustainability.

2. Conclusions Related to Objective 2

The second objective aimed to identify the factors influencing agricultural transformation pathways and the adoption of sustainable agricultural practices.

The econometric analyses demonstrate that agricultural transformation is shaped by multiple livelihood assets rather than by individual household characteristics alone. The Multivariate Probit model reveals that participation in different transformation pathways depends on distinct combinations of natural, financial, physical, human, and social capital. Farm size significantly influenced livelihood diversification and digital transformation, while access to agricultural credit promoted ecological and value-chain transformation. Cooperative participation and institutional support also played important roles in facilitating specific transformation pathways.

Similarly, the Poisson regression analyses indicate that educational attainment, participation in agricultural cooperatives, awareness of digital technologies, and access to extension services significantly increased the adoption intensity of sustainable agricultural practices. Digital technology adoption was likewise influenced by farmers' knowledge, awareness, organizational participation, and access to information. These findings demonstrate that agricultural transformation depends not only on technological availability but also on farmers' capabilities, institutional support, and access to productive resources.

Qualitative evidence further confirmed these quantitative findings by illustrating how local ecological conditions, market opportunities, institutional arrangements, and farmers' adaptive experiences collectively influence agricultural decision-making. The integration of quantitative and qualitative evidence therefore provides a more comprehensive understanding of the mechanisms through which agricultural transformation occurs within the diverse ecological contexts of the Vietnamese Mekong Delta.

3. Conclusions Related to Objective 3

The third objective sought to develop future directions for agricultural transformation that support sustainable rural livelihoods under the policy framework of Resolution 120.

The integrated synthesis of quantitative and qualitative findings demonstrates that agricultural transformation should be understood as a livelihood-centered adaptation process rather than as a series of independent technological or production changes. The findings show that Resolution 120 and its associated development programs have strengthened multiple livelihood assets through investments in ecological planning, infrastructure, agricultural extension, cooperative development, digital innovation, and climate adaptation. These strengthened livelihood assets have enabled rural households to adopt multiple agricultural transformation pathways, which collectively contribute to improved economic performance, enhanced social resilience, and greater environmental sustainability.

However, the synthesis also identifies several persistent challenges. Improvements in livelihood assets remain uneven across households and ecological regions, advanced digital innovation remains limited, financial constraints continue to restrict participation in higher-value transformation pathways, and institutional coordination among development programs requires further strengthening. These findings indicate that agricultural transformation is an ongoing process that requires continuous policy adaptation rather than a completed development outcome.

Based on these findings, the dissertation proposes that future agricultural transformation under Resolution 120 should prioritize strengthening livelihood assets, promoting integrated transformation pathways, advancing digital innovation within climate-smart agriculture, and improving multi-level policy coordination. Collectively, these strategic directions provide an evidence-based framework for enhancing the resilience, inclusiveness, and sustainability of rural livelihoods in the Vietnamese Mekong Delta.

B. Original Contributions of the Dissertation

This dissertation makes original contributions to the literature on agricultural transformation and sustainable rural livelihoods from theoretical, methodological, and empirical perspectives. By integrating multiple analytical approaches within the context of Resolution 120 in the Vietnamese Mekong Delta, the study extends current understanding of how agricultural transformation contributes to sustainable livelihood development under conditions of climate change and policy transition.

1. Theoretical Contributions

The principal theoretical contribution of this dissertation lies in developing an integrated analytical perspective that links agricultural transformation with the Sustainable Livelihoods Framework within the context of climate-resilient rural development.

Previous studies have generally examined agricultural transformation through individual dimensions such as land-use change, agricultural restructuring, digital agriculture, climate-smart agriculture, or sustainable agricultural practices. While these studies have provided valuable insights into specific aspects of transformation, they have paid relatively limited attention to how multiple transformation processes interact with household livelihood assets to influence sustainable livelihood outcomes. Consequently, agricultural transformation has often been interpreted as a collection of separate technological or structural changes rather than as an integrated livelihood adaptation process.

This dissertation addresses this gap by demonstrating that agricultural transformation is more appropriately understood as a dynamic process through which policy interventions strengthen household livelihood assets, enabling rural households to adopt multiple transformation pathways that collectively improve livelihood sustainability. By integrating Agricultural Transformation Theory with the Sustainable Livelihoods Framework, the study provides a broader conceptual explanation of how institutional support, livelihood assets, transformation strategies, and livelihood outcomes interact within a changing environmental and policy context.

Unlike conventional interpretations that associate agricultural transformation primarily with production modernization or structural adjustment, this dissertation conceptualizes transformation as a livelihood-centered process encompassing ecological adaptation, digital innovation, production diversification, market integration, and institutional development. This integrated perspective contributes to the growing body of literature emphasizing that sustainable agricultural transformation requires coordinated interactions among technological, ecological, institutional, and socioeconomic dimensions rather than isolated sectoral interventions.

2. Methodological Contributions

The second contribution of this dissertation is methodological. The study employed a convergent mixed-methods design that systematically integrated quantitative household survey data with qualitative evidence obtained through key informant interviews and focus group discussions. Rather than using qualitative findings solely to illustrate quantitative results, both

forms of evidence were synthesized throughout the analytical process to explain not only what transformation occurred but also why differences emerged across households and ecological regions.

The quantitative component combined descriptive statistics, Multivariate Probit analysis, and Poisson regression models to investigate different dimensions of agricultural transformation. The Multivariate Probit model captured the interdependence among multiple transformation pathways, recognizing that households frequently adopt several adaptation strategies simultaneously rather than independently. The Poisson regression models identified the determinants of digital technology adoption and sustainable agricultural practice adoption intensity, providing detailed evidence regarding the influence of livelihood assets on farmers' adaptive behavior.

The qualitative component complemented these statistical analyses by explaining the institutional, ecological, and socioeconomic mechanisms underlying observed quantitative relationships. The integration of household survey data with qualitative evidence therefore strengthened the robustness, credibility, and interpretative depth of the research findings. This methodological approach demonstrates the value of combining econometric analysis with qualitative inquiry when investigating complex rural transformation processes influenced by multiple interacting factors.

3. Empirical Contributions

The empirical contribution of this dissertation lies in providing comprehensive evidence regarding agricultural transformation following the implementation of Resolution 120 in the Vietnamese Mekong Delta.

First, the study identifies five major agricultural transformation pathways adopted by rural households, namely land-use transformation, ecological transformation, livelihood diversification, digital transformation, and value-chain transformation. Rather than treating these pathways as independent processes, the dissertation demonstrates that they frequently occur simultaneously and collectively shape sustainable livelihood outcomes.

Second, the study provides empirical evidence that different livelihood assets influence different transformation pathways. Natural, human, physical, financial, and social capital each play distinct but complementary roles in enabling agricultural transformation. This finding highlights the importance of adopting a livelihood-based perspective when designing

agricultural development policies rather than focusing exclusively on production technologies or infrastructure investment.

Third, the dissertation demonstrates that agricultural transformation under Resolution 120 has generated positive economic, social, and environmental outcomes while simultaneously revealing persistent disparities in access to livelihood assets, digital innovation, institutional support, and financial resources. These findings provide a balanced assessment of both the achievements and remaining challenges associated with policy implementation.

Finally, the dissertation develops an integrated synthesis linking policy interventions, livelihood assets, agricultural transformation pathways, and sustainable livelihood outcomes within a single analytical framework. This synthesis extends existing empirical evidence by illustrating how agricultural transformation operates as an interconnected livelihood adaptation process under conditions of climate change and policy transition. The resulting evidence provides a stronger foundation for future policy formulation and contributes to a more comprehensive understanding of agricultural transformation in the Vietnamese Mekong Delta.

C. Recommendations

The findings of this dissertation demonstrate that agricultural transformation under Resolution No. 120/NQ-CP has generated substantial progress toward climate-resilient and sustainable agricultural development in the Vietnamese Mekong Delta. Nevertheless, the transformation process remains uneven across ecological regions and livelihood groups, reflecting differences in access to livelihood assets, institutional support, market opportunities, and technological capacity. Based on the empirical findings presented in Chapters 4–6, the following recommendations are proposed to strengthen agricultural transformation and enhance the sustainability of rural livelihoods.

1. Recommendations for Central Government

The Government of Vietnam should continue strengthening the implementation of Resolution No. 120/NQ-CP by shifting from broad policy orientation toward more targeted and region-specific implementation strategies. While Resolution 120 provides an integrated vision for climate-resilient development, its implementation should increasingly recognize the diverse ecological characteristics of different sub-regions within the Mekong Delta. Future investment priorities should therefore be based on ecological zoning, climate vulnerability, and local comparative advantages rather than administrative boundaries.

Greater investment should be directed toward climate-resilient infrastructure, including irrigation systems, salinity-control facilities, freshwater storage, digital communication infrastructure, and transportation networks that facilitate market access. These investments should support ecological agriculture, efficient water management, and diversified farming systems rather than reinforcing production systems that are increasingly vulnerable to climate change.

National agricultural policies should also strengthen digital transformation by expanding rural broadband infrastructure, promoting digital advisory platforms, supporting agricultural databases, and encouraging public-private partnerships for agricultural innovation. Digital transformation should be integrated into existing agricultural extension programs rather than being implemented as isolated technology projects.

Finally, continuous monitoring and evaluation mechanisms should be established to assess the long-term impacts of Resolution 120 on agricultural transformation, livelihood sustainability, and climate resilience across different ecological regions.

2. Recommendations for Provincial and Local Governments

Provincial authorities should develop agricultural transformation strategies that are tailored to the ecological conditions of individual districts and farming systems. Rather than applying uniform development models across the province, local planning should promote differentiated agricultural pathways according to ecological advantages, climate risks, and local market opportunities.

Local governments should strengthen agricultural extension services by providing regular technical training on climate-smart agriculture, ecological farming practices, sustainable agricultural practices, digital technologies, and integrated farm management. Extension officers should increasingly function as innovation facilitators who connect farmers with research institutions, cooperatives, enterprises, and digital advisory services.

Investment should also prioritize demonstration farms, farmer field schools, and participatory learning approaches that allow farmers to observe successful transformation models under local conditions. Strengthening collaboration among local governments, universities, research institutes, and private enterprises would further improve knowledge transfer and innovation diffusion.

3. Recommendations for Cooperatives and Private Enterprises

The results indicate that institutional support plays an important role in facilitating agricultural transformation. Cooperatives should therefore expand their functions beyond traditional input supply by providing integrated services including technical assistance, digital information, collective marketing, product traceability, financial facilitation, and climate advisory services.

Private enterprises should strengthen long-term partnerships with farmers through contract farming, value-chain integration, and investment in processing and storage facilities. Stable market linkages would reduce market uncertainty while encouraging farmers to adopt higher-value agricultural products and sustainable production systems.

Enterprises should also collaborate with government agencies and cooperatives to develop digital traceability systems, quality certification, and branding strategies that increase product competitiveness in both domestic and international markets.

4. Recommendations for Farmers

Farmers should view agricultural transformation as an integrated process rather than relying on individual adaptation measures. The findings of this study suggest that households adopting multiple transformation pathways are better positioned to improve livelihood sustainability than those depending on a single strategy.

Farmers are therefore encouraged to combine ecological farming practices, livelihood diversification, digital technologies, value-chain participation, and sustainable resource management according to their local ecological conditions. Continuous participation in training programs, producer organizations, and agricultural cooperatives will strengthen adaptive capacity and facilitate access to information, credit, technologies, and markets.

Digital literacy should also become an important component of household livelihood strategies. Farmers should gradually move beyond basic communication applications toward wider adoption of digital advisory services, market information systems, precision agriculture technologies, and farm management applications that support evidence-based decision making.

5. Recommendations for Research Institutions and Universities

Universities and research institutes should continue developing locally adapted innovations that support climate-resilient agricultural transformation under changing

environmental conditions. Future research should prioritize practical technologies that improve resource-use efficiency, climate adaptation, ecological restoration, and sustainable intensification while remaining economically feasible for smallholder farmers.

Interdisciplinary collaboration among agricultural sciences, environmental sciences, economics, rural development, and digital technologies should be strengthened to better understand the complex interactions between policy implementation, livelihood assets, agricultural transformation, and sustainability outcomes.

Researchers should also expand longitudinal studies that monitor household transformation over time, allowing policymakers to evaluate the long-term effectiveness of Resolution 120 and identify emerging challenges associated with climate change, market integration, and technological development.

6. Recommendations for Future Implementation of Resolution 120

Building upon the integrated agricultural transformation framework proposed in this dissertation, future implementation of Resolution 120 should adopt a pathway-based approach that recognizes multiple transformation trajectories rather than promoting a single development model. Different ecological regions require different combinations of land-use adjustment, ecological farming, livelihood diversification, digital transformation, and value-chain integration.

Policy interventions should therefore strengthen the five transformation pathways simultaneously while ensuring that improvements in livelihood assets including natural, human, physical, financial, and social capital support farmers' capacity to adopt appropriate transformation strategies. Such an integrated approach would enhance not only agricultural productivity but also the long-term sustainability, resilience, and inclusiveness of rural livelihoods throughout the Vietnamese Mekong Delta.

D. Limitations of the Study

Every empirical study has methodological and contextual limitations that should be acknowledged when interpreting the findings. Recognizing these limitations not only clarifies the scope of the present research but also provides a foundation for future investigations on agricultural transformation and sustainable rural livelihoods.

First, the geographical scope of the study was limited to An Giang Province, which represents three major ecological sub-regions of the Vietnamese Mekong Delta. Although these study sites capture considerable variation in farming systems, ecological conditions, and

livelihood strategies, caution should be exercised when generalizing the findings to the entire Mekong Delta or to other regions of Vietnam. Agricultural transformation is influenced by diverse environmental, institutional, and socioeconomic conditions that vary across provinces.

Second, this research employed a cross-sectional survey design that captured household conditions during a single period following the implementation of Resolution 120. While the study successfully identifies important relationships between livelihood assets, agricultural transformation pathways, and sustainable livelihood outcomes, the research design does not allow direct observation of dynamic changes over time. Agricultural transformation is inherently a long-term process, and longitudinal studies would provide stronger evidence regarding how households adapt to evolving environmental, technological, and policy conditions.

Third, the quantitative analyses focused primarily on household-level determinants of agricultural transformation. Broader institutional factors including policy implementation capacity, market governance, private-sector investment, and inter-agency coordination were examined qualitatively but were not incorporated into the econometric models. Future studies could integrate household, community, institutional, and regional datasets within multilevel analytical frameworks to better explain the complexity of agricultural transformation.

Fourth, agricultural transformation was examined through five major transformation pathways identified from the empirical evidence. Although these pathways capture the dominant forms of transformation observed in the study area, they may not fully encompass all emerging forms of innovation, particularly those associated with rapidly evolving digital agriculture, carbon-smart agriculture, circular agriculture, and nature-based solutions. As agricultural systems continue to evolve, additional transformation pathways may emerge that warrant further investigation.

Finally, sustainable livelihood outcomes in this dissertation were assessed using farmers' perceptions together with quantitative household information. Although perception-based indicators provide valuable insights into household experiences and decision-making, future research could complement these measures with longer-term objective indicators of environmental quality, ecosystem services, greenhouse gas emissions, biodiversity conservation, and household welfare.

Despite these limitations, the dissertation provides robust empirical evidence through the integration of quantitative and qualitative methods, offering a comprehensive assessment of

agricultural transformation under Resolution 120 and establishing a valuable foundation for future research.

E. Directions for Future Research

The findings of this dissertation suggest several promising directions for future research on agricultural transformation and sustainable rural livelihoods.

First, future studies should adopt longitudinal research designs to examine how agricultural transformation evolves over time. Such studies would improve understanding of the long-term effects of policy implementation, climate change, technological innovation, and market dynamics on rural livelihoods and would provide stronger evidence regarding causal relationships among livelihood assets, transformation pathways, and livelihood outcomes.

Second, comparative studies across multiple provinces or countries would contribute to a broader understanding of agricultural transformation under diverse ecological and institutional contexts. Comparing different regions within the Mekong Delta or across Southeast Asia would help identify both context-specific and generalizable transformation processes, thereby enriching the comparative literature on climate-resilient agricultural development.

Third, future research should further investigate the rapidly expanding role of digital technologies in agricultural transformation. Emerging technologies such as artificial intelligence, remote sensing, Internet of Things (IoT) applications, unmanned aerial vehicles, blockchain-based traceability systems, and precision agriculture are expected to reshape agricultural production and rural livelihoods significantly over the coming decades. Understanding the socioeconomic, institutional, and behavioral factors influencing the adoption of these technologies remains an important research priority.

Fourth, future studies could incorporate additional analytical dimensions, including governance quality, policy implementation effectiveness, gender dynamics, youth participation, private-sector engagement, and social inclusion. Examining these factors would contribute to a more comprehensive understanding of how agricultural transformation can become more equitable and inclusive.

Finally, future research should continue developing integrated analytical approaches that connect agricultural transformation, livelihood resilience, ecosystem sustainability, and climate adaptation. Such interdisciplinary perspectives are increasingly necessary for understanding

the complex interactions among environmental change, technological innovation, public policy, and rural development under conditions of increasing uncertainty.

F. Final Remarks

Agricultural transformation has become one of the defining development challenges and opportunities facing the Vietnamese Mekong Delta under the combined pressures of climate change, environmental degradation, and socioeconomic transition. Resolution 120 represents an important policy shift by promoting agricultural development that is aligned with ecological conditions, climate resilience, and sustainable livelihoods. However, the success of this transformation ultimately depends on the capacity of rural households to adapt, innovate, and participate in changing agricultural systems.

This dissertation demonstrates that agricultural transformation is best understood as an integrated livelihood adaptation process in which supportive policies strengthen livelihood assets, enabling rural households to adopt multiple transformation pathways that collectively enhance economic performance, social resilience, and environmental sustainability. The findings further show that technological innovation alone is insufficient to achieve sustainable agricultural transformation. Instead, long-term success requires balanced investments in human, natural, physical, financial, and social capital together with effective institutional coordination, market integration, and ecosystem-based planning.

By integrating quantitative and qualitative evidence within a coherent analytical framework, this dissertation contributes to a deeper understanding of agricultural transformation under Resolution 120 while providing practical evidence to support future agricultural and rural development policies in the Vietnamese Mekong Delta. It is hoped that the findings and recommendations presented in this study will contribute not only to academic knowledge but also to the ongoing efforts of policymakers, researchers, extension organizations, and farming communities to build a more resilient, inclusive, and sustainable agricultural future.