



## BUILDING GREEN SUPPLY CHAIN FOR RURAL TOURISM DURING AND AFTER COVID-19

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### Abstract

This study aims to explore how to implement the green supply chain into rural tourism for sustainable development of local community during and after Covid-19. The conceptual framework of green supply chain provides a systematic approach to uncertainties from upstream to downstream of destination. The proposed framework was constructed through a case study of 13 local rural communities in southwest Taiwan. The results showed that when local communities developed rural tourism as a recovery strategy, the community obtained opportunities for sustainable development. However, local communities faced serious problems, such as agricultural production and marketing and young people leaving. Sustainable rural development can help address physical and mental health issues associated with COVID-19. Green-care elements within communities involve two critical resources for developing rural tourism, namely tangible resources such as agricultural foods and beverages, natural landscapes, and historical heritage, and intangible resources, such as slow lifestyle and cultural festivals.

Keywords: Sustainable Tourism. Agriculture; COVID-19; green supply chain; recovery strategy; rural tourism; sustainable development.

## Introduction

The United Nations Conference on Trade and Development (UNCTAD) reported (2020, July 01) that the COVID-19 pandemic has caused the world's tourism industry a loss of at least \$1.2 trillion, accounting for approximately 1.5% of the global gross domestic product. The economic damage is extensive; the global tourism industry has never previously faced a crisis as severe as the COVID-19 pandemic: travel agencies have closed and laid off workers; hotel guests have cancelled accommodations for the foreseeable future, and some hotels have been designated as quarantine facilities; a few airlines continue to operate but only under strict travel restrictions; and tourist attractions and their ancillary businesses—coffee shops, restaurants, and gift shops—have mostly shut down.

To address these situations, the United Nations World Tourism Organization (UNWTO, 2020 and 2023) proposed several action points in response to COVID-19's impact, as follows: Promote domestic tourism as a recovery

policy; enhance community participation in recovery based on cultural tourism; recommend that rural communities develop tourism to enhance human wellbeing and promote sustainable rural development.

The importance of rural tourism in the context of COVID-19, relatively few such studies exist and specific gaps need consideration, as follows: first, the content of recovery policies of international organizations, such as UNWTO, is not linked with academic research. Second, published studies generally apply quantitative research methods (such as questionnaires and surveys); qualitative research methods have not yet been in this context. The third gap is lack of practical consideration of local community strategies for developing rural tourism under the auspices of promoting health and sustainable rural development during and after COVID-19.

Accordingly, the current study investigated this under-explored phenomenon by gaining insights through practical experience. This study was composed of three stages – a theoretical

review, examination of findings and reflections via a practical case study, and building a conceptual framework for rural sustainable development.

The concept of green supply chain management was used to construct a theoretical framework. Kim and Chai (2017) proposed that green supply chain management is suitable for evaluating and implementing environmental practices in terms of internal and external factors. In the present study, the local community developed rural tourism, similarly to how a business or organization implements environmental practice (i.e., to protect the environment or reduce environmental damage). In the second stage, a case study of Taiwan was conducted to examine the circumstances in the Asia-Pacific context.

#### *Rural Tourism as Recovery Strategy Community-Driven*

Although many countries and international organizations have suggested recovery policies in response to the crisis, green approaches (UN, 2020, December). as a recovery strategy are necessary as the world faces concerns about the COVID-19 pandemic, climate change, and how to protect the living environ-

ment in moves toward sustainability. As such, rural tourism has become an important way of avoiding coronavirus infection.

Rural tourism plays an important role in the sustainable development of local economies (Fleische & Pizam, 1997). Such tourism, depends on providing cultural experiences to attract tourists to rural areas, such as B&Bs (bed and breakfasts) that serve local agri-foods. Sustainable development is based on environmental, socio-cultural, and economical sustainability at the local or regional level. Local development involves geography (landscapes), animals, plants (agriculture), historical buildings, and customs. These elements of local development define the characteristics of rural tourism.

The development of rural tourism can be a sustainable strategy to develop rural areas more broadly. Lane (1994) suggested sustainable rural tourism as a strategy and tool for rural development and conservation. Rural tourism as a strategy requires dialogue and connections among government, tourism businesses (service providers), local communities, and other parties interested in local development. Local development in-

cludes local infrastructure investment, such as in transportation, public services, accommodations, restaurants (food & beverage services), travel services (tour guides), and souvenir sales (local agri-foods, handicrafts, cultural and creative products). The providers of these goods and services are thus the stakeholders of rural or local development.

As defined by Alexander and Mckenna (1998) rural tourism involves Their perspective highlights that the countryside can foster behavioural change and improve people's lifestyles and health. Rural areas can promote behavioural change by virtue of tangible and intangible cultural heritage experiences in rural communities. These characteristics mean that rural areas are conducive to improving people's lifestyle and health. Travel to the countryside promotes relaxation and a slowing of the pace of life; visitors may take the time to appreciate local sights, without the pressure to move onward, which can enable feelings of the authenticity within the individual's life.

### Methodology

A case study (Yin, 2003) is suitable for building theory from a social and

cultural context, as explained by Eisenhardt (1989)—the case study is a research strategy that focuses on understanding the dynamics present within a single setting. The case study involves a process of qualitative data collection, including archives, interviews, questionnaires, and observations. The present study considers rural tourism can help community towards sustainable development. It is the questions of why and how to investigate unknown social and cultural context, and this way has fitted Whetten (1989) denoted “what constitutes a theoretical contribution?” in 1989. Since case studies have been broadly implemented in COVID-19 studies, as well as in studies of sustainable rural tourism.

To explore how and why sustainable rural tourism can be a recovery strategy, data were collected from Community Development Associations. Data collection was from July 2021 to March 2022. In the data collection process, the project team first collated a list of Community Development Associations for potential field visitation. The original list was over fifty communities, included formal and informal community suggested by domain experts (rural community development) and government's administrators. After two evaluation

meetings with local government and experts, the list was reduced from fifty to twenty.

An important evaluation conditions was that communities must have received a budget from the community re-engineering project within 3 years, and the budget must have been supported by the local government. Seven communities were not willing to receive our field visits. Finally, the 13 remaining communities were accepted for field visitations and face-to-face interviews by telephone and social media. The key persons of the Community Development Associations were visited and received in-depth interviews. The key persons were chairpersons or secretary-generals of the Community Development Associations, who guided the researcher in making practical observations.

### Result and Discussion

Taiwan is an important reference point in the COVID-19 pandemic. As the pandemic remains unpredictable, most countries continue to experience an increasing number of confirmed cases and deaths. Meanwhile, Taiwan's CDC (2023). has been reporting a small number of confirmed cases, which suggests

that COVID-19 is under control in Taiwan. From January 2020 to date, COVID-19 continues to impact Taiwan's tourism industry; travel demands are still decreasing and human-distance restrictions are still increasing.

In this situation, a sensible, comprehensive recovery policy is particularly important for Taiwan's tourism industry. Part of this recovery policy is the promotion of domestic tourism to compensate for the decrease in the number of international tourists. Without appropriate recovery policies in place, the crisis could expand from a public health issue to an economic disaster. The Executive Yuan, Taiwan's top administrative organization, announced a variety of recovery policies in response to the pandemic.

On July 23, 2020, Taiwan's Premier and cabinet approved an increase in the second special budget, emphasizing "that a number of industries in Taiwan are still reeling under the effects of the coronavirus pandemic, including certain manufacturing sectors, trade services, expo organizers and venues, and tourism and transportation companies catering to international visitors" (Executive Yuan, 2020, July). The cabinet approved the first and second special budgets, includ-

ing a policy that grants citizens the use of a “triple stimulus” voucher (Executive Yuan, 2020, June) to encourage spending and spur economic activity. In an explicit response to COVID-19’s impact on the tourism industry, a financial relief and recovery program provides broad subsidies to support enterprises and service workers.

The tourism industry nationwide consists of travel agencies (3,990 enterprises and c. 44,000 employees); tour operators, including tour guides, managers, and national tourism personnel (c. 40,000 workers); international and tourist hotels (3,500 enterprises and c. 90,000 employees); homestays and B&Bs (9,000 enterprises); and amusement parks (25 enterprises and c. 6,000 employees). According to those recovery policies, local communities must seek strategies of use for future survival.

#### *Specific Characteristics: Geographical and Cultural Diversity*

The studied communities in southwest Taiwan have specific characteristics in terms of geographical and cultural diversity. As Taiwan is a large island in the West Pacific Ocean, the most populous cities are in western Taiwan, as the Cen-

tral Mountains separate the base geography; this affects the population’s lifestyle.

In the southwest city, the lifestyle is slower and more relaxed since this region is dominated by agricultural production. Although some cities have changed from agricultural to industrial in focus, such as Kaohsiung City, outside of cities, most of the population works in agriculture. For these reasons, this area has specific characteristics in terms of geographical and cultural diversity. Currently, Tainan City is an old city, with both a deeply historical heritage and cultural gastronomy attractions. Kaohsiung City is an international port city for trade that is increasingly developing as a cultural-creative city. Southernmost Pingtung County is characterized by well-being and a specific indigenous culture.

#### *Developing Tourism Can Improve the Rural Economy during and after COVID-19*

When the triple stimulus voucher was provided for broad used anywhere from 2020 to 2022 in Taiwan, it illustrated how a recovery policy can help the regional tourism industry. Benefits to the local economy during COVID-19 were

found for hotels, B&Bs, restaurants, travel agencies, tour guides, gift shops, and other associated service companies; thus, such supportive policies can improve the performance of these businesses. However, some residents of these destinations were unhappy about having too many tourists. The influx of tourists successfully shifted the industry's focus from international to domestic markets. Such an "explosion" of domestic visitors over-loaded the capacity of some of these places and significantly affected everyday life in a relatively short time in aspects such as garbage, traffic jams, air pollution, and local resources, such as energy, water, and food. It is interesting that the recovery policies successfully improved the economies of local communities, especially those of the most "famous" destinations. Such famous destinations explicitly advertise and have reputations that promote tourism. However, compared with those famous destinations, relatively unpopular countryside may receive fewer benefits from the recovery policy. Therefore, development of tourism was a way for unpopular destinations to rebuild a favorable reputation and attract tourists during the pandemic. Two communities explained what they expected and worked for:

The residents of Guangde community have different living styles—when young people leave, older residents need more care, and my work is to assist local residents in protecting the environment and traditional Hakka culture in rural villages, including agricultural farming and traditional Hakka music. Although the COVID-19 pandemic continues, we hope that people will travel to Meinung District of Kaohsiung City, but we also worry that too many people might visit, like in the case of Green Island or Liuqiu (small islands offshore), because having too many tourists might have negative impacts on our tourism resources.

*Tourism Encourages Rural Communities  
Toward a Green Care Environment*

Tourism provides different benefits for rural communities. Rural areas need a chance to change their economic situation, and an improved economy brings other opportunities for local residents in terms of jobs. Rural areas consist predominantly of older people, women, or children, as younger residents typically work outside these areas. However, rural residents still need to make money for food and other necessities. Local community development of rural tourism requires residents to consider what specific



natural resources could be used to attract tourists. The motivation toward greening actions in the environment may create conditions that promote wellbeing.

Previously, our residents farmed to earn money; these days, agriculture benefits us in other ways, for instance, by decorating the rural landscape, thereby providing green care elements for our families. Through agriculture, value is created not only from farm to table, but also from our homes to rural farms. First, we have a fish and vegetable symbiosis system for children's environmental education, but sometimes we used those vegetables to make lunch boxes for old people. The lunch boxes are all free because our community has a goal that we want to take care for each other. Second, we set up an ecological garden for community residents to relax when on vacation; residents can eat together, can laugh together, we are connected by our friendship and care for our emotions in our busy lives. We never thought that our community had "word of mouth" after we did those works, but some tourists came and put some photos on Facebook; they said we are a happiness community. I think agriculture provides a natural environment for green re-habitation, green food and beverages, and green care in

safety-friendly areas. It makes our community become an ecological chain as well as a health chain. A green care environment for people who travel to our community, even we are an unpopular community.

Sustainable development and economic recovery present numerous trade-offs. While travel demand undoubtedly benefits the economy, tourism has social, cultural, and environmental costs. Taiwan's rural areas, like in other countries worldwide, function as harbingers of the consequences of such trade-offs, while also playing an important role in conserving natural resources. However, in the face of sudden large-scale crises, such as the COVID-19 pandemic, policymakers usually neglect biodiversity conservation (Pearson et al. 2020). and environmental sustainability.

Rather than considering green growth strategies and implementing holistic environmental, cultural, and social protection strategies, policymakers might choose economic recovery at the cost of sustainability. Without protections in place, visitors act with impunity, damage local ecologies, deface historical and cultural heritage sites, consume limited natural resources, create waste, and



pollute the air and water. Therefore, UNWTO's recommendations are suitable for answering questions regarding rural tourism. The following views are from the chairman or secretary-general of the local community associations, regarding how they worked for rural tourism during and after COVID-19.

*Tourism as a Strategic Pillar of Policies for Rural Development*

Encouraging people from cities to stay in the countryside more often helps improve the economic situation in rural areas. As evidence, a secretary-general indicated how they made agro-tourism (agricultural tourism) a commitment and common consensus in the community towards more sustainable development:

We must develop tourism when we have community meetings where all residents talk together. Only when tourists travel to our place can we make money because here, there are no natural resources such as pure water or energy, only agriculture and landscapes. We are ready because our residents have set up a tour map when tourists travel to our community, they can DIY - a handmade soap made by local onions and recycled oils. This is not only to make money

from agricultural products sold, but also tourists can stay in old buildings to understand our farming culture and heritage. And the extended benefits are that the money in this moment (COVID-19) can buy medical masks for old people in home care and for after-school classes for young children.

*A Conceptual Framework of Green Supply Chain Building with Agriculture*

After examining the processes in the practical case study in 13 communities, this study can link theory and practice. A framework for building a green supply chain within rural tourism as a recovery strategy. The conceptual framework is the scope of a green supply chain from upstream to downstream of destination, whereby a rural location provides different services using clean technologies to improve the environment, which enhances tourists' experience of the local culture and is consistent with the goal of sustainable rural development.

Sustainable development of rural tourism provides an opportunity to improve the local economy. This opportunity is inexorably linked to green spaces, whereby a community can provide "a leisure or holiday activity based on rural

tourist attractions and other resources”. Lane (1994) proposed sustainable rural tourism as a tool for rural development and conservation; this tool (rural tourism) is a sustainable rural strategy that is consistent with “green care in agriculture”. Therefore, green care in agriculture is part of a green-care recovery strategy to

overcome the impact of COVID-19. The proposed conceptual framework is shown in Figure 1.

The demand side is composed of the B2C (business to customer) green supply chain, which comprises international customers or domestic tourists.

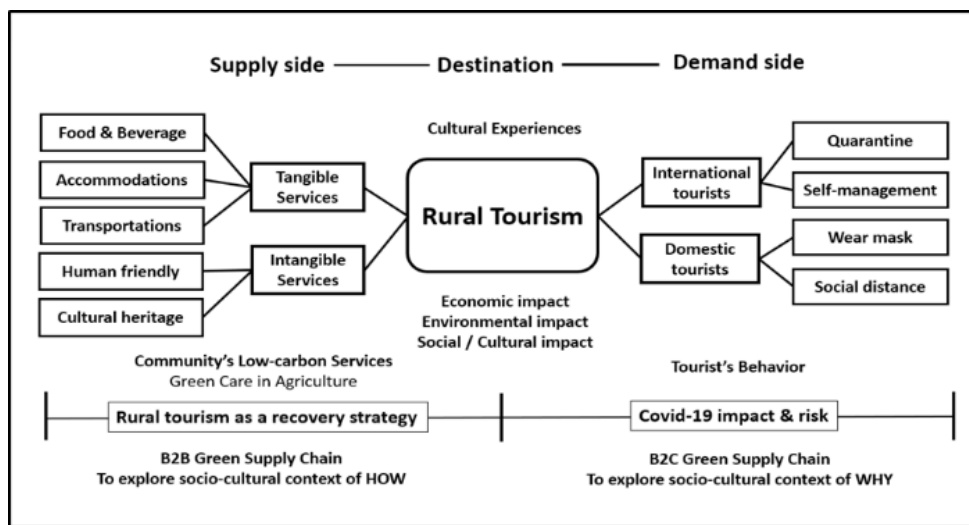


Figure 1. A conceptual framework of a green supply chain: local community develops agriculture-based rural tourism to ameliorate the impact of COVID-19.

During and after COVID-19, tourists experience psycho-social risk; therefore, tourists engage in responsible behavior, such as quarantine or self-management when travelling internationally. Domestic tourists must wear masks and maintain social distance. Therefore, the B2C green supply chain explores why the local socio-cultural context is.

In the centre of the green supply chain are the local rural areas, namely the destinations. The destinations play an important role since each is subject to economic, environmental, and socio-cultural impact of rural tourism. To encourage tourists to visit, the destination should present a diversification environment (Sharpley, 2002). The environment must be clean, hygienic, and safe. Fur-

ther, the location should provide sufficient low-carbon services (enjoyable rural travel within local agricultural environment such as eat and living in rural community) to enable tourists to enjoy cultural experiences within agricultural environment.

The supply side is composed of the B2B (business to business) green supply chain, through which residents provide different low-carbon services to tourists. The service providers are small and medium “tourism” enterprises (SMEs), whose services are interconnected as a service network for rural tourism. Such services may be tangible (food & beverages, historical heritage, and natural landscape) or intangible (friendly human interactions and local culture). These services can increase the diversification of the destination and thereby enhance the recovery strategy in response to COVID-19. Therefore, the B2B green supply chain explores how the local socio-cultural context is.

### Conclusions

This study did not only find that rural areas encounter different problems regarding sustainable development, such as the economic problem of agricultural

production and marketing, the environmental problem of farming with chemical pesticides, the socio-cultural problem of young people leaving, and the protection of traditional customs. The case study also provided evidence of an effective approach by which to tackle the challenges associated with the COVID-19 pandemic. The pandemic offers an opportunity to develop recovery plans, build a more sustainable future (UN, 2020) and help rural areas develop sustainable rural tourism.

However, the impact of increased visitor mobility and retaliatory consumption on recently reopened economies remain unclear. Retaliatory consumption—the assumption that consumers will rebound to make up for reduced spending during the outbreak—reflects the need to escape from the shadow of COVID-19. Fortunately, Taiwan and similar places have suffered less than many others during the outbreak; however, this should not constitute a license to damage the environment to maximize tourism growth. A sustainable approach involves carefully planned reopening of domestic tourism to prevent not just the spread of COVID-19, but also minimize its broader impact in the short and long terms. Without sustainable recovery policies,

after COVID-19 might also mark the end of clean beaches, and distaste for visiting destinations now crowded and spoilt due to retaliatory travel consumption. We must stop and take this opportunity to reflect on how to recover in such a way that sustainable rural tourism can be developed in harmony with human beings and the natural environment.

In summary, this study explored during and after COVID-19 pandemic in the Asia-Pacific context and used Taiwan's rural communities to provide regional context regarding global rural community sustainability. The implications in terms of theory, limitations, and future research directions are discussed below.

#### *Implications - Theory Developed within Practical Experience*

The present study considered questions of “how” and “why” in a scenario of local region sustainable development; its context provides a value-added contribution to theory development (Eisenhardt, 1989; Whetten, 1989). A theory was developed within the conceptual framework of a green supply chain: local community development of agriculture-based rural tourism in the context of

Covid-19. The conceptual framework of a green supply chain provides a systematic approach to problems upstream and downstream of the destination. Downstream represents demand side, which consists of COVID-19 related threats and recovery policy. Upstream is the supply side, which consists of rural destinations that include tangible and intangible resources through which local communities can develop sustainable rural tourism as strategy to recover from some of the economic effects during and after COVID-19. Therefore, management-related implications of the present work are as follows.

First, domestic travel to rural communities has become an important choice; in particular, rural areas have been rebuilt as a new domestic tourist destination during the pandemic; Second, the pandemic was caused by human-to-human contact, but travelling to rural communities avoids concerns such as how to follow social distancing measures; Third, rural communities provide a natural and culture-centric experience and environment, consisting of agricultural products (food and beverages); trees, rivers, and other natural features; historical buildings and their associated stories; and local wildlife. These elements are compo-

nents of a green care approach in response to COVID-19.

The findings of this study not only identify actionable responses to during and after COVID-19 pandemic but also highlight the need for responsible tourist behavior under pandemic conditions.

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#### References

- Alexander, N., & Mckenna, (1998). A Rural tourism in the heart of England. *International Journal of Contemporary Hospitality Management*, 10(5): 203-207.
- Chin, C. H. (2022). Empirical research on the competitiveness of rural tourism destinations: A practical plan for rural tourism industry post-COVID-19. *Consumer Behavior in Tourism and Hospitality*, 17(2), 211-231.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Executive Yuan (R.O.C.). (2020, July 23). Cabinet approves second increase in COVID-19 special budget. Retrieved August 02, 2023, from: <https://english.ey.gov.tw/Page/61BF20C3E89B856/5135c15d-b99e-416c-a963-c83568c35458>
- Executive Yuan (Taiwan). (2023, June 02). Executive Yuan Announces 'triple stimulus' voucher program. Retrieved August 02, 2023, from <https://english.ey.gov.tw/Page/61BF20C3E89B856/07dd64bc-5609-426c-bcb0-9aec3aabcab7>
- He, G., Pan, Y., & Tanaka, T. (2020). The short-term impacts of COVID-19 lockdown on urban air pollution in China, *Nature Sustainability*, 3, 1005–1011.
- Kim, M., & Chai, S. (2017). Implementing environmental practices for accomplishing sustainable green supply chain management. *Sustainability*, 9, 1192.

- Lane, B. (1994). Sustainable rural tourism strategy: A Tool for development and conservation. *Journal of Sustainable Tourism*, 2(1/2): 102-111.
- Li, Z., Zhang, X., Yang, K., Singer, R., & Cui, R. (2021). Urban and rural tourism under COVID-19 in China: research on the recovery measures and tourism development. *Tourism Review*, 76(4), 718-736.
- Pearson, R.M., Sievers, M., McClure, E.C., Turschwell, M.P., & Connolly, R.M. (2020). COVID-19 recovery can benefit biodiversity. *Science*, 368:6493, 838-839.
- Sharpley, R. (2002). Rural tourism and the challenge of tourism diversification: The case of Cyprus. *Tourism Management*, 23, 233-244.
- Taiwan's CDC (Taiwan Centers for Disease Control). (2023). Retrieved August 15, 2023, from <https://www.cdc.gov.tw/En>
- United Nations (UN). (2020). The sustainable development goals report 2020. Retrieved August 02, 2023, from:
- 2023, from:  
<https://sdgs.un.org/publications/sustainable-development-goals-report-2020-24686>
- United Nations (UN). (2020, December 14). Green approaches to COVID-19 recovery: Policy note for Parliamentarians. Retrieved August 12, 2023, from:  
<https://www.unep.org/resources/report/green-approaches-covid-19-recovery-policy-note-parliamentarians>
- United Nations Conference on Trade and Development (UNCTAD). (2020, July 01). Coronavirus will cost global tourism at least \$1.2 trillion. Retrieved August 02, 2023, from <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2416>
- United Nations World Tourism Organization (UNWTO). (2023). Cultural tourism & COVID-19. Retrieved August 02, 2023, from <https://www.unwto.org/cultural-tourism-covid-19>
- United Nations World Tourism Organization (UNWTO). (2020, July). How are countries

supporting tourism recovery?  
tourism and COVID-19 – Briefing  
note. Retrieved August 02, 2023,  
from:  
[https://doi.org/10.18111/97892844  
21893](https://doi.org/10.18111/9789284421893)

Whetten, D. A. (1989). What constitutes  
a theoretical contribution?  
Academy of Management Review,  
14(4), 490-495.

Wilder-Smith A., & Freedman D.O.  
(2020). Isolation, quarantine, social  
distancing and community  
containment: Pivotal role for  
old-style public health measures in  
the novel coronavirus (2019-Ncov)  
outbreak. Journal of Travel  
Medicine, 27(2),

Yin, R.K. (2003). Case study research:  
design and methods, 3rd ed., Sage  
Publications: Newbury Park, CA,  
USA.