



Circulative Bottom-Up Processes for Sustainable Development as a Prosumer: Lesson Learned from Asia

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Abstract

This paper discusses the relationship between economic and urban development through case studies in Asia. Firstly, it introduces housing issues and regional disparities due to rapid urbanization in Asian countries, with a case study in Thailand. To consider sustainable development to support the next stage to review lifestyle, this study then introduces a new business model from a Japanese small enterprise as an advanced case. Through the subsequent impacts of bottom-up processes, the expanding cycle demonstrates a further vision of the potential of sustainable development.

Keywords

Buy One Give One, Solar Lantern, Prosumer, Disparity, Asia.

I. Introduction

Historically, Japan maintains a form of sustainable business mentality called *Sampo-Yoshi* originally adopted by Omi merchants who were from Shiga Prefecture mainly during the Edo and Meiji periods from 1600. *Sampo-Yoshi* means *three-way satisfaction*. The merchants emphasized that business should be beneficial to three parties, namely, the seller, the buyer, and the local community, and consequently it would deliver more in the future. This thought was accepted and respected throughout the country. In fact, many businesses today continue to follow this mindset as company policy. However, the wave of globalization and informatization has surpassed such small business minds, so that recognizing this mindset in real life, especially in urbanized cities, is becoming difficult.

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Nowadays, the changes are more striking in the developing countries of Asia. This study first conducts a review of the recent rapid urbanization and related issues at the macro and micro levels. Chapter II then introduces the case of Thailand, which has experienced rapid urbanization and widening disparity, and presents narratives of struggle among poor local communities. Chapter III proposes a new business model by a company in Tokyo classified as a small and medium-sized enterprise (SME). Through case studies of the project, the study takes the lessons learned from new bottom-up processes and the cycle to elucidate the potential of sustainable development from the perspective of *Sampo-Yoshi* that promotes the concept of prosumers beyond the disparities between the urban and rural, the consumer and producer, and the giver and receiver.

II. Development and Disparity

1. Two-Line Patterns of Urban Growth

The growth of the population of mega cities worldwide since 1950 is evident (Figure 1), as evidenced on the cover of the *Journal of the Architectural Institute of Japan* issued in January 2011 with the title 'Future Slums – in Prospect for Urbanization'. The topic confronts us with the startling global question of how to handle urbanization, sustainability, and ecology.¹

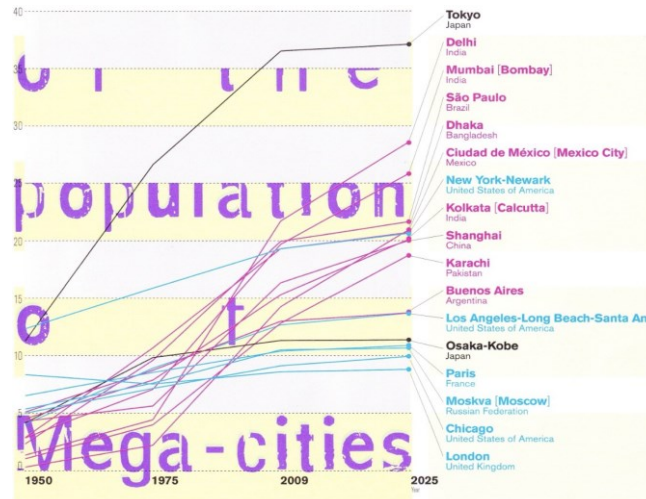
As Figure 1 shows, in the beginning, New York was the biggest city with a population of approximately 12 million in 1950. Within a few years, Tokyo became the biggest mega city as a metropolitan region through major economic growth until the 2000s. A notable aspect is that there are two patterns of growth. The first is the relatively high rate in developing countries (e.g., Delhi and Mumbai in India, Sao Paulo in Brazil, Kolkata in India, Shanghai in China, Karachi in Pakistan, and Buenos Aires in Argentina) shown as pink lines. The second is the comparatively slow growth rate in developed countries such as New York City, Los Angeles, and Chicago in the United States, Paris in France, Moscow in Russia, and London in the United Kingdom as blue lines.

The topic of the journal emphasizes that the different line patterns indicate that Tokyo in Japan experienced rapid urban growth which developing countries had faced 50 years previously. An aspect that requires careful consideration is the experience of Japan in terms of gains and

¹ The *Journal of the Architectural Institute* is the oldest academic journal in Japan issued from 1887. Available at <https://www.aij.or.jp/eng/journal/journal.html> (last visited 30 August 2024). Selected references include: M. Davis, *Planet of Slums* (USA: Verso, 2006); M. Hosaka, *Asian Cities and Our Living* (Tokyo: Akaishi Shoten, 1994); M. Mostafavi and G. Doherty, *Ecological Urbanism* (Zurich: Lars Mueller, 2010); and R. Narita, *Cultural Experience in Modern Urban Spaces* (Tokyo: Iwanami Shoten, 2003).

losses as a result of rapid development, which can be reviewed for the benefit of cities in developing countries that are currently facing severe urban issues such as overcrowding, traffic jams, disaster risks, urban sprawl, environmental deterioration, loss of historical heritage, and pollution.

These urban issues commonly lead to social and cultural problems, most notably the corrupting of local communities by their new lifestyle with convenience goods and services. Citizen no longer seem to need relationships with neighbours. In the case of major cities in developed countries, people are seeking to move away from cities to acquire a better quality of life. However, in Japan, concentration of the population in the Tokyo metropolitan area is continuing, drawing on the strength of high technology. Nowadays, the risk of a super aging society in Tokyo is a serious concern.



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Figure 1: Population Growth of Mega Cities Since 1950²

In the field of urban planning, slums are recognized as a historical urban issue, characterized by sprawling urbanization, and can be an obstacle to proper urban management worldwide. Slums, that is, settlements outside the scope of urban planning frameworks, have been viewed as an undesirable problem. Although many plans and projects, such as eviction and relocation, are implemented under development mainly led by the government, the total number of such informal settlements continues to rise in developing countries.³

² Architectural Institute of Japan, *Future Slums – in Prospect for Urbanization* (Tokyo: AIJ, 2011) (in Japanese), 124, 1612.

³ United Nations, *Implementation of the Outcome of the United Nations Conference*

On the other hand, there is recognition that urban planning is facing a paradigm shift from 'government to governance', which promotes a bottom-up planning system and involves all stakeholders. The development of urban informal settlements mainly focuses on cooperation with governments and community-based organizations, although large gaps exist between the formal and informal sectors. Some academic circles consider that a practical evaluation and examination of this partnership process are required for further sustainable urban development.⁴

The concept of partnership can be considered as one of the methods for development through governance. Although many definitions of the term exist by case and by region, a commonly recognized one is that it is a 'process of shared resources and responsibility by independent organizations in the long term'. This came into prominence as a concept of new public management in the United Kingdom in the 1980s⁵ with the objective of slimming down government bodies and accepting the various needs of residents. A best-selling book in the United States *Reinventing Government* (1992)⁶ promoted the need to recognize that implementing actors are composed not only of the local government but also of the private sector, non-government, non-profit, and people's organizations.⁷ Through conceptual and practical reviews, discussion on partnership tends to identify the importance of the following topics: the necessity of a comprehensive framework for physical construction; the difficulty of reaching mutual agreements based on varying forms of private profit; the lack of a formal right to decision-making within community-based organizations; and the difficulty of formulating an overall opinion in one community through people's organization.⁸

In the case of developing countries, the concept of partnership for governance was mapped out by developed countries in the context of an assessment on international aid from the late 1990s. Although many development policies employed the concept at the national and regional levels, practical discussion and evaluation tended to be limited to partial

on Human Settlements (Habitat II) and Strengthening of the United Nations Human Settlements Programme (UN-Habitat): Report of the Secretary General (A/61/262) (New York: United Nations, 2006).

⁴ N. Devas, P. Amis, J. Beall, U. Grant, D. Mitlin, F. Nunan and C. Rokodi, *Urban Governance, Voice and Poverty in the Developing World* (UK: Earthscan, 2004).

⁵ H. Yamamoto, *Local Government and Local Governance* (Tokyo: Hosei University Press, 2008) (in Japanese).

⁶ D. Osborne and T. Gaebler, *Reinventing Government: The Five Strategies for Reinventing Government* (USA: Penguin Publishing Group, 1992, reprinted 1993).

⁷ N. Devas et al, n 4 above.

⁸ Y. Nawata, 'Institutionalization of Community and the Patterns in Modern Japan: Self-government of Community', in *International Comparison of Decentralization and Partnership in Self-government Bodies* (Tokyo: Nippon Hyoron Sha, 2009) (in Japanese), 15-43.

structural systems and issues⁹ such as irrational budgeting and corruption by politicians. In practice, large socio-economic disparity may also impede further communication to build relationships between stakeholders.¹⁰

2. The Case of Thailand

The disparity between the poor and rich is becoming severe in developing countries in Asia. Many slum and squatter settlements can be found in cities. An increasing number of migrants move to cities from rural areas and, occasionally, beyond the borders due to the pull of cities seen in the concentration of job opportunities and social services. As the Land of Smiles and an attractive destination for foreign tourists, Thailand was unfortunately nominated as one of the countries with the highest rates of economic disparity by Credit Suisse in 2018.¹¹ It was reported that approximately 1% of the population is rich, while 67% own property.

3. Rapid Urbanization in Bangkok

The capital city of Thailand, Bangkok, is one of the mega cities in Asia and is home to a population of more than 9 million, which comprises 13% of the national population (2021). Urbanization has spread rapidly alongside globalization since the 1980s. Similar to the experience of other developing countries, informal settlements or slums have emerged due to the large number of migrants without proper accommodation and social services, including education and training. Although the number of slums reached over 1,200 in 2008, NGOs estimated the figure to be over 1,700. Figure 2 shows that the locations of slum communities are expanding from the city centre to the suburbs.

⁹ S. Odugbemi and T. Jacobson eds, *Governance Reform under Real-World Conditions: Citizens, Stakeholders, and Voice* (USA: World Bank, 2007), 277-330.

¹⁰ N. Hataya, *Urban People's Organization in Developing Countries: Role in the Development Society* (Tokyo: Institute of Developing Economies, 1999), 493, 14-17.

¹¹ Credit Suisse, *Global Wealth Databook 2018* (October 2018), available at <https://www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/global-wealth-databook-2018.pdf> (last visited 9th June 2024).

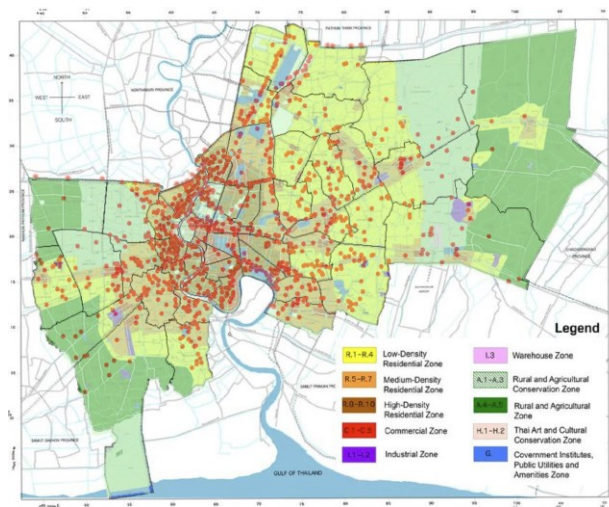


Figure 2: Comprehensive Plans and Locations of Slum Communities in Bangkok¹²

The Bangkok Metropolitan Administration (BMA) initiated the registration of communities under the Act of Community Committee Management in 1985 via the BMA law. The Department of Community Development conducts the management of 50 district offices. In exchange for a monthly budget (5,000 baht in 2009) to all registered communities irrespective of the size of the population, the Committee is obligated to submit a monthly report with evidence and attend monthly meetings at the district office.

In the Thai language, community is called *chumchon*, which the BMA categorizes into five types of community, namely: slum, urban, public housing, privately developed, and suburban communities (Table 1). Additionally, high-rise communities have been considered a new category since 2015. By 2016, the total number of communities reached 2,069 with a population of 2,103,277 composed of 411,432 families and 331,175 households, which cover 18.2% of the total population in Bangkok. Given the changes from 2011 to 2016, the number of typically poor (slum) communities decreased from 797 to 682, which indicates that these communities were relocated or upgraded. Public housing communities also decreased by nearly half, that is, from 119 to 68. The form of housing called *flat* is not shown under the expanding redevelopment, especially the construction of condominiums for the rich. In contrast, the number of urban communities increased from 287 to 457.

¹² Bangkok Metropolitan Administration: the author's GIS data analysed from address information given by the National Housing Authority (NHA) in Thailand for 2001.

Table 1: Definition and Number of Communities in the Bangkok Metropolitan Area¹³

Category	Definition	2011	2016	2016
Slum communities	Highly dense and disorderly, issues include living environment, especially security and sanitary; 15 households/1,600m ² .	797	682	33.0%
Public housing	Medium-high apartments developed by the National Housing Authority. BMA installed drainage, garbage collection, roads, sanitary facilities and so on.	119	68	3.3%
Urban communities	Located in urbanized areas; household density is lower than for slums and higher than for suburbs.	287	457	22.1%
Privately developed communities	Detached houses, town houses, and apartments developed by private companies. BMA installs drainage, garbage collection, and roads, among others.	365	358	17.3%
Suburban communities	Partially agricultural activities; vulnerable to natural disasters, such as floods, due to incomplete infrastructure.	420	420	20.3%
High-rise communities	Since 2015	NA	84	4.1%

The review of development projects implemented from 1960 to 2006 reveals that the major actor of planning and projects shifted from the central government to public organizations. The study comprehensively shows the lack of networking between the project actors and local governments and the limited rights and authority in local governments and communities.

4. The Collective Housing Programme at the National Level

Plans and projects for development in poor communities changed dramatically from the 1960s to the 2000s. Specifically, from 1960 to early 1980, the major types of projects were eviction and the relocation of slums by landowners and private developers. Since the establishment of the National Housing Authority (NHA) in 1973 to provide low-cost housing for people in the low- and middle-income brackets, large-scale relocation projects were rapidly launched and construction took place. Moreover,

¹³ Edited based on data from the Department of Policy Establishment of the BMA, *Guideline for Community Development* (Bangkok: Technical and Planning Division, Office of Community Development, 1992, 2011 and 2016).

since the establishment of the Urban Community Development Organization (UCDO) in 1992, many projects for communities were set up with increased attention given to the self-development of communities under the Sixth and Seventh National Economic and Social Development Plan (1987–1997). The Community Organization Development Institute (CODI), through a merger between UCDO and the Rural Development Fund in 2000, led to the launch of bottom-up processes and people-centred projects as pilots throughout the country. At the same time, it promoted networking between communities for the sharing and learning of experiences.^{14,15}

As an outstanding development programme, the CODI spearheaded the *Baan Mankong* (Secure Housing) Collective Housing Programme in January 2003. The programme channelled government funds in the form of infrastructure subsidies and soft housing and land loans directly to poor communities. It planned and implemented improvements in housing, the environment, basic services and tenure security, as well as budget management.¹⁶ This community-driven approach enabled citizens to become core actors and to decentralize the solution-funding and implementation process to cities and communities. The CODI designated the key elements in the programme as flexible finance, saving groups, collective arrangements, horizontal support, and technical support. The types of upgrading were categorized as on-site upgrading, re-blocking, reconstruction, land sharing, and relocation.

For all types of programme, the following key steps are essential:

- (1) identify stakeholders and explain the programme;
- (2) organize network meetings, which may include visits from people in other cities;
- (3) hold meetings in each urban community and involve municipal staff, if possible;
- (4) establish a joint committee that includes network leaders, the municipality, academics, and NGOs to oversee implementation;

¹⁴ K. Kashiwazaki and T. Kidokoro, 'A Study on the Partnership Process for the Development of Urban Informal Settlements: The Challenge of the Community Organization Council (COC) in Bangkok Metropolitan Area, Thailand' *Journal of International City Planning* (Japan: City Planning Institute of Japan, 2010), 391-400 (in Japanese).

¹⁵ K. Kashiwazaki, 'Spatial and Social Impacts of Formalization of Community Development Activities: The Case of Bangkok, Thailand', in *Proceedings of the 3rd Conference of Asian Association of Urban and Regional Studies* (Japan: AAURS, 2011), 172-185.

¹⁶ Community Organization Development Institute, Ministry of Social Development and Human Security, Thailand, *BAAN MANKONG – Thailand's City-wide, Community-Driven Slum Upgrading and Community Housing Development at National Scale* (Thailand: CODI, 2016).

- (5) hold a meeting by the joint committee with representatives from urban poor communities;
- (6) conduct a survey that includes all communities and collect information on households, housing security, land ownership, infrastructure problems, community organizations, savings activities and existing development initiatives;
- (7) based on the survey, develop a plan for the entire city;
- (8) during the above-mentioned process, support community collective saving, because this not only mobilizes local resources but also strengthens local groups and builds collective management skills;
- (9) select pilot projects on the basis of need and the willingness of the community to implement and learn;
- (10) prepare development plans for pilots, begin construction, and implement as a learning centre for other communities and actors;
- (11) extend improvement processes to other communities, including those living on the fringes of society, such as the homeless and migrant workers;
- (12) integrate these upgrading initiatives into city-wide development, including coordination with public and private landowners, to provide secure tenure or alternative land for resettlement; and
- (13) build community networks based on common land ownership, shared construction, cooperative enterprises, community welfare, and the collective maintenance of canals and create economic spaces for the poor (e.g., new markets) or opportunities, whichever is possible, during upgrading.

By 2016, a total of 984 projects were run in 1,939 communities with 99,203 households in 348 cities in 76 provinces (out of a total of 77 provinces). The grants and loans approved were 6,670 and 8,351 million baht (USD 202 and 253 million), respectively, while the amount of community savings reached 236 million baht (USD 7.8 million).¹⁷

5. For the Next Stage to Create Sustainable Development

Through the experiences of community development under the concept of the Baan Mangkong programme, the study suggests that there are certainly different processes to be upgraded. Several successful pilot projects have led to the strengthening of community unity and the collection of information on social and economic activities within communities in Bangkok. These model cases are offered for review for other poor communities through networking. At the same time, a number of communities faced difficulties in the implementation of the steps due to

¹⁷ *ibid.*

unexpected events such as fires, the spread of infectious diseases, and changes of committee members.^{18, 19} Changes in local politicians and community leaders also led to radical differences. Kim (2022) reported that the strict restrictions during the COVID-19 pandemic led to residents changing their mind, especially about what they consumed and how much they saved.²⁰

The review implied that the implementation of the development programme is time intensive, while management after construction has become increasingly important. Currently, the more important issue is how to change the mentality and behaviour of residents toward consumption and production in order to maintain the cohesion of their developed community and their living environment. To move toward a life of stability, people must reconsider their economic lifestyles.

III. The 'Buy One Give One' Project

1. The Status of Small and Medium-Sized Enterprises in Japan

Before the waves of rapid urbanization and globalization, business activities commonly emerged from their local communities on the small scale. In Japan, the Small and Medium-sized Enterprise Basic Act (Act no 154 of 1963) classifies the range of small and medium-sized enterprises according to the type of industry. For example, a manufacturing business should be a company/individual with a fund of less than JPY 300 million or less than 300 permanent employees, while a wholesale business should possess a fund of less than JPY 100 million or 100 employees. Other examples include a retail business, whose fund should be less than JPY 50 million or 50 employees, and a service industry with a fund of less than JPY 50 million or 100 employees. According to the report of the Small and Medium Enterprise Agency under the Ministry of Economy, Trade and Industry, the number of SMEs in Japan reached 33,650,000 in 2021,

¹⁸ K. Kashiwazaki, 'Urban Communities and Sustainable Development Goals', in H. Kitawaki and A. Kaneko eds, *Evidence-based Knowledge to Achieve SDGs from Field Activities* (Japan: ASPARABOOKS, Center for Sustainable Development Studies, Toyo University, 2021), 121-133.

¹⁹ M.N. Rahman and K. Kashiwazaki, 'Urban Poor Community Housing in Thailand: Qualitative Study on the Perceptions of Yen Akard Community Residents Regarding the Baan Mankong Program', in *Proceedings of the 17th Conference of Asian and African City Planning* (Japan: CIDUP, 2021), 124-131.

²⁰ K.B. Apolinar and K. Kashiwazaki, 'Impact of COVID-19 on Financial Behavior and the Housing Project in a Small-Congested Community in Bangkok, Thailand: A Case Study in Yannawa District', in *Proceedings of the 19th Conference of International Development and Urban Planning* (Japan: CIDUP, 2023), 100-108.

which comprises 99.7% of all enterprises. This number decreased from 38,090,000 in 2014, although the rate remains the same at 99.7%.²¹

Regardless of size, companies pay more attention to sustainability especially after the spread of the Sustainable Development Goals (SDGs).²² In terms of the energy sector, small scale and off-grid supply is becoming recognized as effective support for developing counties where there are great geographical distances between communities or houses such as mountainous and desert areas, rather than large-scale and on-grid supply.²³

In the case of companies or organizations using solar lanterns, the following approaches are examples: a social project such as the ‘100 thousand solar lanterns project’ by the Panasonic Cooperation,²⁴ charity activities by volunteer groups,²⁵ and programmes of education, research and social engagement.²⁶ One notable project as part of an economic scheme by SMEs is WASSHA²⁷ which was established in 2013 in Tokyo. The startup helps organize local people in Tanzania, Uganda and Mozambique to lend solar lanterns from a charging kiosk where maintenance is also carried out. The process enables local people to understand how to manage energy and how to do business. Its outstanding characteristic is that the process involves not only the local people, but also individual investors and donors internationally. In order to develop and offer continuous support, the impact needs to be evaluated not only at the individual level, but also continuously at the level of the community and society.

To implement projects such as these to support areas in need, researchers underline the importance of localization from the aspect of

²¹ Available at https://www.chusho.meti.go.jp/koukai/chousa/chu_kigyocnt/2023/231213chukigyocnt.html (last visited 30 August 2024) (in Japanese).

²² Presented in the 2022 White Paper on Small and Medium Enterprises in Japan. Available at https://www.chusho.meti.go.jp/pamflet/hakusyosummary_2022/PDF/2022hakusyosummary_eng.pdf (last visited 30 August 2024).

²³ T. Okamura et al, ‘The Current Situation of Solar Home System Usage and Problems Due to Its Inappropriate Uses in Unelectrified Areas of Tanzania’ 59 *Africa Report*, 110-121 (2021) (in Japanese).

²⁴ Panasonic, ‘100 Thousand Solar Lanterns Project’, available at <https://panasonic.net/sustainability/en/lantern/> (last visited 25 August 2024).

²⁵ ‘All-Light Village Project’, Global Peace Foundation, available at <https://www.globalpeace.org/project/all-lights-village-project> (last visited 30 August 2024).

²⁶ T. Onishi, *Development of Solar Lantern for Non-electrified Area in Thailand – The Result of Involving Energy Issue in Design Education* (Japan: Japanese Society for the Science of Design, 2021) (in Japanese).

²⁷ WSSHA, available at <https://wassha.com/> (last visited 30 August 2024).

users.²⁸ The projects provide evidence of the efficient and flexible impact of new energy on the activities of local people. However, the researchers also point out maintenance-related difficulties and the need to combine this source of energy with other energy sources for sustainable development.^{29,30}

2. Background of the Project

Landport Co. Ltd.³¹ was established in Tokyo in April 1990 as a small company. Its mission is to ‘light up your heart’, and its vision is to develop a business that synchronizes with the global environment and the well-being of people. In 2017 Landport invented a small solar lantern which was named ‘CARRY THE SUN’[®] using the concept of ‘the sun at night in the world’. It was developed from the experiences of evacuation during the Hanshin Awaji earthquake in Japan in 1995. The memory of the fear of darkness and relief from a small light during the night is etched in the memory of the CEO, Aya Denma.

The size of the cuboidal lantern is 110 mm and it weighs 57 g. It can be held flat like a Japanese traditional toy, *Kami Fuusen* (paper balloons), so that it is easy to handle. The portable and waterproof lantern is suitable not only for outdoor use such as on camping sites and in mountaineering activities, but also indoors, as in bathrooms and bedrooms. Another outstanding aspect is the high-quality battery, which lasts for 72 h (continuous use), while solar charging takes 7 h. It costs JPY 4,400 (EUR 25.66).³²

In 2017, the ‘Buy One Give One[®]’ project was launched. If a consumer purchases lanterns from the official website of the project, then the company delivers the same number of lanterns to areas without or with an insufficient electricity supply such as slum communities, villages of ethnic minorities in mountainous areas, refugee camps, and disaster-affected areas around the world. Sales via the project website increased from 133 in 2019 to approximately 16,000 in 2023. Sales in 2023 were three times higher than those in 2017.³³

Figure 3 illustrates the concept of the project and presents the cycle

²⁸ S. Konaka, I. Ota and S. Son, *Humanitarian Aid from the Aspect of Area Studies: Reviewing from the Field of Nomads in Africa* (Japan: Showado, 2018) (in Japanese).

²⁹ M. Numata et al, ‘Technoeconomic Assessment of Mini-grids in Myanmar’ 99 *Journal of the Japan Institute of Energy* (Japan: Japan Institute of Energy, 2020) (in Japanese), 67-74.

³⁰ T. Okamura et al, n 23 above, 110-121.

³¹ Landport Co., Ltd, Official Website <https://carrythesun.jp/en/> (last visited 30 August 2024).

³² Exchange rate on 27 June 2024.

³³ K. Akama, ‘Refugee Support: Buy One Give One’ *Nikkei MJ* (13 October 2023) (in Japanese).

among sellers, customers, and children in supported areas. Consumers obtain not only lanterns but also information about the supported areas as feedback through Landport's website and on SNSs such as Facebook and Instagram. The data collected by the Centre for Sustainable Development Studies is included as feedback. In addition, this organization was tasked to examine and publish the practical impacts of the project in the field and in the communities. Table 2 reports the time, areas, and number of delivered lanterns since 2022.

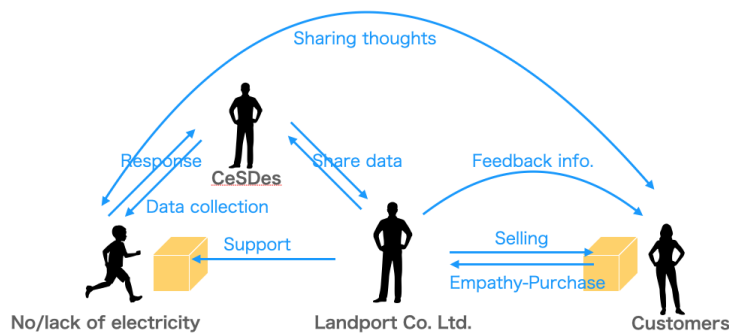


Figure 3: Cycle of the Buy One Give One® project

Table 2: Delivered Lanterns

Year	Destination of Delivered Lanterns	# of CTS
2022	(January) Vietnam	200
	(February) Futaba, Fukushima	285
	(March) Southern Sudan Refugee Camp	1,000
	(April) Child Medical Center	110
	(July) Philippines	40
	(August) Vietnam	200
	Myanmar Refugee Camp	50
2023	(March) Futaba, Fukushima	200
	(February to June) Turkey	12,240
	(August) Myanmar Refugee Camp	624
	(September) Karachi, Pakistan	53
2024	(January) Noto, Japan	10,000+

The characteristic of this project is not only delivering the lanterns but, through the process, understanding the local situation. The company is eager to collaborate with local shops, volunteers, and artists to brand the project as an original one. Sometimes it sells not only lanterns, but also products from disaster-damaged sites to support its business. The latest case is Noto which suffered serious earthquake damage on 1 January 2024, causing many traditional stores to lose the place where they could sell their products. The flexibility of collaboration is also one of the strengths of the

business scheme. It also uses SNSs such as Instagram and Facebook.

3. Carry the Sun ‘Hands to Hands’

A collaborative research project was launched with an agreement between the Centre of Sustainable Development Studies in Toyo University and Landport Co. Ltd. in October 2021. A questionnaire and field survey were conducted to examine the impact of a project in Northern Vietnam in 2022 and at the Myanmar refugee camp in Thailand in 2023. For the questionnaire, the major questions were as follows.

- A) Profile: name of school, grade, age, gender, family structure, and occupation of the members of the household
- B) Use of lantern: frequency, aim, method of battery charging
- C) Perception: positive and negative points
- D) Changes: security, most significant change
- E) Any ideas to utilize the lantern for the future

Through the valuable cooperation of schoolteachers, local companies, and NGOs, the authors collected 45 responses from villages in Northern Vietnam and 30 from the Myanmar refugee camp in Thailand. The subsequent section describes the outcome of the field observation and interviews.

4. The Case of Northern Vietnam

A total of 400 lanterns were delivered in 2022 and 2023 to ethnic schools in the Ha Giang Province of Northern Vietnam and the Thanh Hoa province of Central Vietnam. Poverty suffered by ethnic minorities in Northern Vietnam is severe. The Kinh, Tày, Hmong, Nùng, and LaChi are the major ethnic groups in this area. Many of them traditionally worship the virgin forests and maintain their unique traditional cultural lifestyles. These rich cultural diversities can be observed in the city centre at the morning market at the weekends. However, their living conditions are deteriorating year on year due to their limited income. The effects of climate change in recent years have led to strong thunder and winds, which have inflicted serious damage on agricultural products. Moreover, the effect of the COVID-19 pandemic led to the loss of

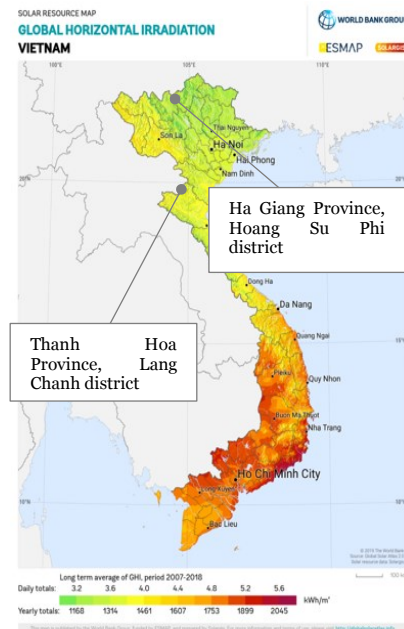


Figure 4. Location of Targeted Schools in Districts

Source: Global Solar Atlas 2.0, Solar Resource data Solargis, CC BY 4.0@The World Bank

opportunities for the education of children in these areas. The disparities of income and education opportunities for children are widening between rural areas and cities.

The surveyed area is Ha Giang Province, which is 319 km from Hanoi and is known for its beautiful landscape of terraced paddy fields. The villages that received lanterns are in the Hoang Su Phi district (629 km²) with a population of 66,683 as of 2021. The life of rice farmers is difficult as they conduct traditional farming on a number of pocket-sized fields with water buffalos. Children need to walk up and down the ridges between the rice fields to school every weekday. Going to school may take more than one hour for many children, so that some children stay in boarding schools and go home during the weekend by motorcycle with parents or relatives.

The houses in the villages are scattered among the mountains, because the inhabitants need to care for the land of their ancestors. A few houses use a small-scale hydroelectric generator from the spring. However, the supply is relatively unstable due to the limited volume of water, especially during winter, and it is occasionally difficult to maintain the generator. Some houses suffer fire due to the poorly maintained wires from the generator to their homes. Although the public supply of electricity has expanded since 2019 after the development of a national road from Hanoi to the Northern Provinces, payment by cash is a new challenge for those who lack sufficient job opportunities.

The results of the questionnaire indicate that children frequently (77.8%) and occasionally (22.2%) use the lanterns. In other words, all the respondents use the lanterns after delivery. The main purpose of the use of the lantern is studying (75.6%), reading books (6.7%) and visiting friends. Other responses include for daily life, travelling to school, and eating meals. Nearly 88.9% use the lanterns at home rather than at school or outside. The average length of use is 56.9 minutes. Among the respondents, 71.2% use the lantern every day and 22.2% four to six days per week.

It was also clear that 24.4% pay attention to the weather to charge the battery, while 42.2% mentioned that they study at home as a new habit. Others stated that the lantern makes it possible to eat dinner together as a family. The most significant change was related to study habits. A few



Figure 5: Location of Refugee Camps
Source: UNHCR

expressed the desire to use the lanterns as public lights on the streets and as decoration at local festivals. On the other hand, 26.7% of children mentioned that they experience difficulty, as they need to rent the lantern from family or friends.

A remarkable outcome is that the lanterns tend to support the study habits of the children and strengthen relationships within the family. To effectively charge the battery under the sun, parents support children in finding a good and safe place. A number of parents keep the lantern on the family altar which is the most sacred place when not in use and allow children to use it for studying. Many of them also mentioned that they love the shape of the light which shines gently rather than too brightly like fluorescent lights.^{34,35}

5. The Case of the Myanmar Refugee Camp

Since the coup d'état on 1 February 2021, more than 1.12 million people (December 2022) have fled from Myanmar to neighbouring countries. The United Nations High Commissioner for Refugees (UNHCR) recorded approximately 1.83 million domestic refugees in May 2023. The situation remains severe and requires long-term support.

Nine refugee camps exist along the boundary of Myanmar in Thailand (Figure 5). In 2023, a total of 724 lanterns were delivered in refugee camps, migrant schools, and medical centres through the support of local NGOs.

In 2023, as part of the study, a survey was conducted at a refugee camp located 75 km from the centre of Mae Sot across the mountains. It is home to 8,952 people and 1,757 households, numbers which continue to increase each month. The camp is divided into 16 sections, and each section has a leader and committee members for management. Although the UNHCR partially initiated the Refugee Resettlement Programme to the United States in 2015, many residents remain on the list, and approximately 20% of the population have been denied resettlement due to old age. Although they can receive 312 baht per month through digital cash, available shops for its use are limited, and the amount is insufficient to obtain daily meals.

The results of the survey indicate the following situation in the camp. In terms of employment, 30% of heads of household work as day labourers, 20% operate retail shops within the camp, and others work as farmers, NGO staff, and administrative officers or are employed in needlework. In

³⁴ K. Kashiwazaki, 'Impact Analysis of Small-Scale Support – Case Study of Solar Lantern Project to Ethnic Minorities in Northern Vietnam', in *The 34th Conference of Japan Society for International Development* (Japan: JASID, 2023) (in Japanese).

³⁵ K. Kashiwazaki, 'Impact Analysis of Solar Lanterns for Non-electrified Villages in Vietnam – From the Primal Survey in 2022', in *Proceeding of the International Symposium of Asian-Pacific Planning Societies* (Japan: City Planning Institute of Japan, 2022), 29-32.

terms of frequency, 40% of the children responded that they frequently use the lanterns and 55.3% occasionally use them. On the other hand, 6.7% do not use the lanterns.

The main purposes of use are studying (56.7%), reading books (26.7%), and general lighting (10%). Others responded that they use them 'during blackouts', which implies they have electricity. A total of 93.3% use the lanterns at home for an average of 86.2 minutes while 73.3% use them once to three times per week, and 20.0% use them four to six times per week. The frequency differs according to the day of the week.

The results of the questionnaire and field surveys on ethnic minority villages located in mountainous areas in 2022 and the Myanmar refugee camp in Thailand in 2023 point to the impact of the lantern on actions and minds. First, we found that more than 90% of children use the lantern continuously for studying at home. Furthermore, we identified that a new relationship emerged between children and parents in terms of the use of the lantern and for effective battery charging under the sun. For example, fathers occasionally place the lantern on the roof when children are in school.

These impacts are limited, since they do not directly change the cultural lifestyle. However, to use the lantern in daily life, people pay greater attention to their environment with regard to the weather and safety. Moreover, a sense of control is created in the need to maintain the lantern as part of their own property.

6. New Cycles

Lessons from the project can be drawn not only from the individuals who received the lantern but also from those who support the project such as local schools, community organizations and companies that deliver the lanterns. The process of directly delivering from one hand to another takes time, incurs costs, and demands effort. However, the outcome of the project is the promotion of empathy and introspection on one's lifestyle regarding the consumption of products and energy. This change of attitude is the major objective of the project.

Two consumers joined a trip to deliver lanterns to Myanmar refugee camps in the summer of 2023. After the trip, they recalled their old family history, which connects Japan, Myanmar, and Thailand. The study suggests that they had begun to understand the situation in these areas and the reason for the challenges being faced there. Moreover, they recognized that the support given to these areas has led to major impacts on themselves to connect with global issues. On the trip, they also met people from Myanmar, Thailand, Japan and elsewhere and also organizations engaged in supporting refugees and children. This experience of connection affected both sides with common aims. The process offers the

potential of extending the cycle of the Buy One Give One® project.

The movement is also expanding to university students through collaborative research projects with companies and academics. For example, a student volunteer group held events and a workshop to connect students who had limited opportunities to get together face to face due to the COVID-19 pandemic in 2020. This experience led to awareness about the environment and social responsibilities of the young generation through active learning. Nowadays, these activities are being enhanced as social collaboration in the research and education fields.

As the next step to increase its impact, it is important to strengthen the cycle by involving local members belonging to the high- and middle-income population. The companies and NGOs which support the project have started to promote the product and project with colleges, business partners, and friends who have sufficient money to purchase lanterns and intend to support poor children in their country. This movement is quite slow and difficult to reinforce as a business system, but it can encourage participants to recognize sustainable markets through their daily consumption and production.

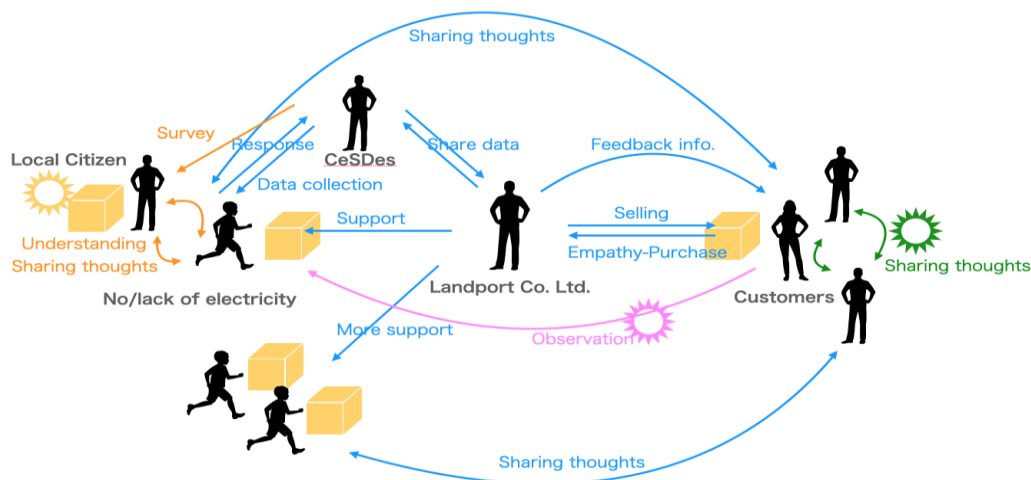


Figure 6. Expanding Cycle of the Project

IV. Conclusion

The concept of the sustainable market such as *Sampo-Yoshi* is based on one where community and life are connected. In recent years, the advances of globalization and digitalization have led to greater efficiency, improved convenience, and transparency, which should continue to develop in the future. However, it is also important to note that it has

become possible to visualize not only the efficiency of production and consumption, but also the philosophy and purpose to continuously create added value.

As we have seen from the case of urbanization and the housing issue in Thailand with the Baan Mangkong programme, rapid development has led to disparities, but a bottom-up approach can be used in poor communities for people to improve with their own hands their housing and living environment for the long term. At the same time, we have learnt how to regenerate the cohesion of local communities which is weakening especially in city areas in Japan which face serious depopulation and where society is aging. Nowadays, the community organization uses digitalization such as social networks to supply extensive information, and it provides more opportunities to understand the latest situation of each individual that goes beyond language. It is time to teach each other the process of development at the community level.

It can be said that the business model of the Buy One Give One® project can provide the opportunity for those who commonly consume products as part of their normal lifestyle to think about what sustainability means to them as opposed to poorer people.

Overall, it can be concluded that the sustainable business model allows for sustainable development to be viewed as a whole. Due to the acceleration of globalization and economic-oriented development without proper policy and regulations, disparities between rich and poor, and between the city and rural areas are growing. However, the fine opportunity offered by a small solar lantern can make an impact on poor children in rural areas who can spend more time studying at home, expanding their awareness of the environment, for example regarding the weather, create new relationships with the family, and recognize their cultural value in beautiful nature and in communities. These children are certainly important human capital and will contribute to the local community and society even though they might need to move to city areas for education or job opportunities in the future. At the same time, a person who has started to recognize the issue of disparity in his or her own country and the unsustainable lifestyle in the city also has the chance to move to a rural area to support and contribute to environmental and cultural conservation.

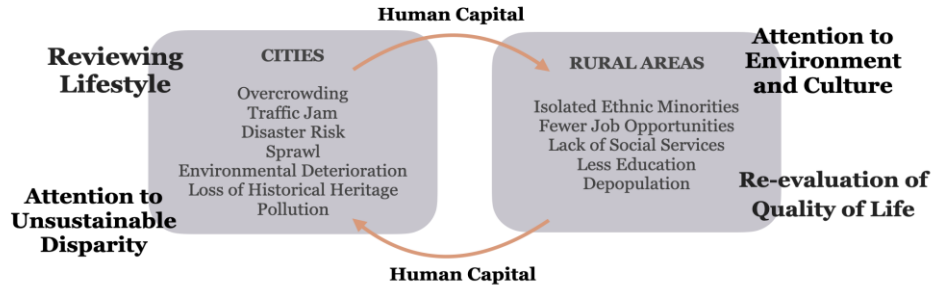


Figure 7: Further Cycle Toward the Elimination of Disparities

In a further vision, this cycle of reviewing consumption and production leads to better human capital and personal cycles beyond cities, rural areas, and countries. Indeed, this vision may be overly optimistic; however, the current researchers continue to hope that the cycle will lead to new market systems. This change can start with small actions.

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