



Community Settlement



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Master Plan Design Concept for Bang Lamung Senior Complex



Conceptual Development and Data Gathering for the Development of a Senior Complex



Revision of Thai Certified Professional Urban Planners



Wastewater Treatment Following The King's Philosophy: Prem Prachakorn Canal Case Study

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A group of business professionals in an office setting. In the foreground, a man in a dark suit and white shirt stands with his hands in his pockets, looking towards the camera. To his right, a woman in a dark blazer and light-colored top stands with her arms crossed, also looking towards the camera. In the background, several other people are visible, some standing and some sitting at desks, all in a professional office environment. The lighting is soft, and the overall tone is professional and collaborative.

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Editor's note

Urbanization is accelerating fast across the world, resulting in major broad-ranging social, economic and environmental implications for urban resource management, waste management and capacity of public utilities and facilities. Urbanization and associated rural-urban development have major impacts on city development and quality of life. The adverse impacts of urbanisation have broad negative consequences, highlighting the urgency of the need to make our cities more stable, secure, resilient, and sustainable.

To reach this goal requires attention on the socio-economic and environmental fronts as well as focusing on the physical environment. Urban development and city planning will require creation of new residential areas, while also nurturing an enabling environment and infrastructure that allows micro- and macro-economic activity to flourish. It should also create a good environment that promotes health and wellbeing. Moreover, the city must be designed to be flexible, adaptable and ready to embrace change e.g., as a result of climate change impacts. Finally, it is also important that urban development also ensure conservation of local culture and heritage.

Research on urbanisation and human settlement is crucial to the country's development. Therefore, it is vital to understand and integrate knowledge and expertise related to urban development from various disciplines in order to develop effective integrated urban development plans. These disciplines are broad-ranging and include city planning, urban environments, architecture, urban economics, art, law and politics. Moreover, planning and design of built environments requires harnessing of innovation via collaboration among all relevant stakeholders including communities, public and private sector actors and civil society groups.

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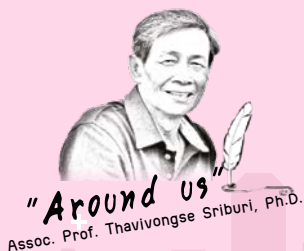
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Master Plan Design Concept for Bang Lamung Senior Complex



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Introduction

As the number of older adults is on the rise, it is expected that in 2021, Thailand will enter a “complete ageing society” and by 2031 will be classed as a “super-aged society”. With longer life expectancy, attention of government agencies and the private sector is increasingly pivoting to address the needs of the elderly, with clear improvements in health and quality of life. The Department of Older Persons, Ministry of Social Development and Human Security, realized the importance of this age group and commissioned a study to create a “Master Plan for Bang Lamung Senior Complex in Bang Lamung Subdistrict, Bang Lamung District, Chonburi Province” (Trairat Jarutat, 2017).

The Master Plan aimed to use the study results to implement policies, plans, goals and objectives to maximize benefits and improve the quality of life of senior citizens. In developing the Master Plan, the study analyzed the population structure, case studies from similar construction projects, and estimated phasing and development costs. It also conducted an area survey. The study illustrated good models of a senior complex suitable for elderly residents in terms of its usability and as an elderly-friendly place. It also helped develop recommendations for enhanced care and quality of life for the elderly.



Conclusion

The study concluded that the Master Plan design concept should utilize the land according to land use functions by dividing it into residential building areas, common areas, service or repair areas, and areas for parks and recreation. Transportation routes must be provided within the complex, such as roads, main footpaths and connecting passageways. The design should be in groups or clusters for more convenient and accessible services. The common area should be centrally located for ease of access. There should be parks and recreation areas suitable for the elderly. Public spaces should also be provided for members of the public. Moreover, a service space should also be provided for staff to manage the complex. The landscape design should include several areas such as a healing garden, roof garden, seaside garden as well as a harmonious general relaxation area to create a sense of holistic well-being of the elderly in a sustainable living environment.



Conceptual Development and Data Gathering for the Development of a Senior Complex

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Introduction

By mid-2016, Thailand had started to become an ageing society, with the elderly comprising 16.5% of the population. By 2025, the country will become a fully-fledged ageing society, with the proportion of elderly people rising to as high as 20%. Inevitably this will carry economic and social impacts for the country. Therefore, the government prioritized a policy to build residential complexes for the country's senior citizens, in order to address their needs and prepare the country for this evolution. The government, therefore, approved a series of measures proposed by the Ministry of Finance. The Treasury Department provided plots of land registered as Crown Property for the development of a Senior Complex, and the project was listed under the "Civil-state Strategy" known as Thai "Pracharat".

The study compiled and analyzed data from ten housing projects for senior citizens in Thailand and Japan, which provided data for the development of the complex on Crown Property. The data gathered included conceptual project planning, administrative and service aspects, and the enabling regulatory framework. The project targeted residents older than 55 years of age with the objective of facilitating a comfortable life in the complex equipped with appropriate assistive infrastructure. The complex will also provide healthcare and other services. Located in six provinces: (Chon Buri, Samut Prakan, Prachuap Khiri Khan, Nakhon Nayok, Chiang Mai and Chiang Rai), the Crown Property areas were surveyed and chosen as pilot locations. The framework and timeline for the development of the "Senior Complex" were also designed to ensure proper development of the project to achieve optimal outcomes. This project contributes to sustainable development of the country in terms of economic and social targets.

Conclusion

The study indicated three possible plans that the Treasury Department could use to implement the “Senior Complex” project development on the royal property. It was recommended that the Treasury Department collaborate with the Treasury Asset Development Co., Ltd. (Bank of Thailand). Development Model 1 and Model 2 were highly recommended. However, under Model 3, in which the Treasury Department must give permission to private developers by letting out the land and allowing them to develop the project instead, the Treasury Department must consider the Private Investment in Public Affairs Act, B.E. 2556. Thus, in terms of services, service staff working for the Senior Complex should be trained by external agencies both for care work and other services so that they can independently carry out their tasks in the complex in the future.

However, it is important to note that willingness to relocate decreases with age, linked to strong bonds with their original home and the unwillingness to become accustomed to an unfamiliar environment. Some may say that relocating is an unnecessary action that wastes their time and money. In fact, most older people prefer ageing in place.



Photo by www.jinwellbeing.com



Revision of Thai Certified Professional Urban Planners



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Introduction

Professional qualifications were developed to certify competency, knowledge, and skills to perform certain professions to agreed standards as relevant to technical needs as well as the demands of business and industry. The certification process ensures that candidates possess the necessary skills, expertise and experience required to meet the set standards and to be deemed eligible to be granted “*certified professional status*”. This status is important in terms of professional development and career advancement, particularly to the extent that it is recognized as equivalent to other types of qualifications (Thailand Professional Qualification Institute (Public Organization), 2021).

The process for achieving certified professional status for urban planners is currently under revision for two reasons.

1) The Professional Qualification Framework for urban planners has been expanded from seven to eight levels to ensure that the level of qualification is aligned with the profession’s competency level. Requirements are set for each level, including knowledge, skills, desired characteristics, responsibilities, expected outcomes from innovative projects, and the level of difficulty of specific types of work.

2) In 2019 an amendment to the Town Planning Act B.E. 2518 (1975) was enacted, requiring regulatory changes in occupational standards and professional qualifications for the urban planning profession, including the change from seven to eight levels as noted above.

With the two main reasons stated above, a review of occupational standards and professional qualifications for the urban planning profession soon followed to meet the legislation changes. For example, the Town Planning Act B.E. 2562 (2019) has included eight levels of qualification framework instead of seven levels as before. Therefore, it is necessary to conduct a review of the professional qualifications to suit the new framework.

The Thailand Professional Qualification Institute (Public Organization) joined hands with **Chula Unisearch** to update the professional qualification standards to align with the new requirements. The project also is aligned with a Royal Decree establishing the Thailand Professional Qualification Institute (Public Organization) B.E. 2554 (2011) which aims to enhance human capacity to support the 20-year National Strategy (2017–2036) and the Thailand 4.0 policy. The review was conducted to achieve three key objectives.

- 1) To ensure that occupational standards and professional qualifications follow the new 8-level professional qualification framework.

- 2) To ensure that the professional qualification framework is up to date and relevant to today's requirements and emerging professions.

- 3) To review assessment tools and written examinations used to test knowledge.

This Institute's review was implemented in accordance with the 8 National Qualifications Framework (NQF) proposed by the Office of the Education Council to be equivalent to the ASEAN Qualification Reference Framework (AQRF). The review included occupational standards and professional qualifications as well as content, tools, and the assessment methodology used to grant the qualification. The Institute designed the review to include opinions from all sectors and focused on three professional categories in urban planning: 1) Urban Planner Level 5 (support personnel); 2) Town Planner Level 6 (key personnel), and 3) Town Planners Level 7 (key personnel). The framework was approved by Cabinet resolution on April 18, 2017 and implemented by the Institute.

It was critically important that the revised framework was relevant and consistent with the current business environment; the new framework is now recognized as equivalent to the ASEAN Qualification Reference Framework (AQRF).

Thus, this project has contributed directly to improving professional standards among urban planners, which directly impacts sustainable urban development and quality of life for city dwellers- both critical to urban planning for the future.

Conclusion and recommendation

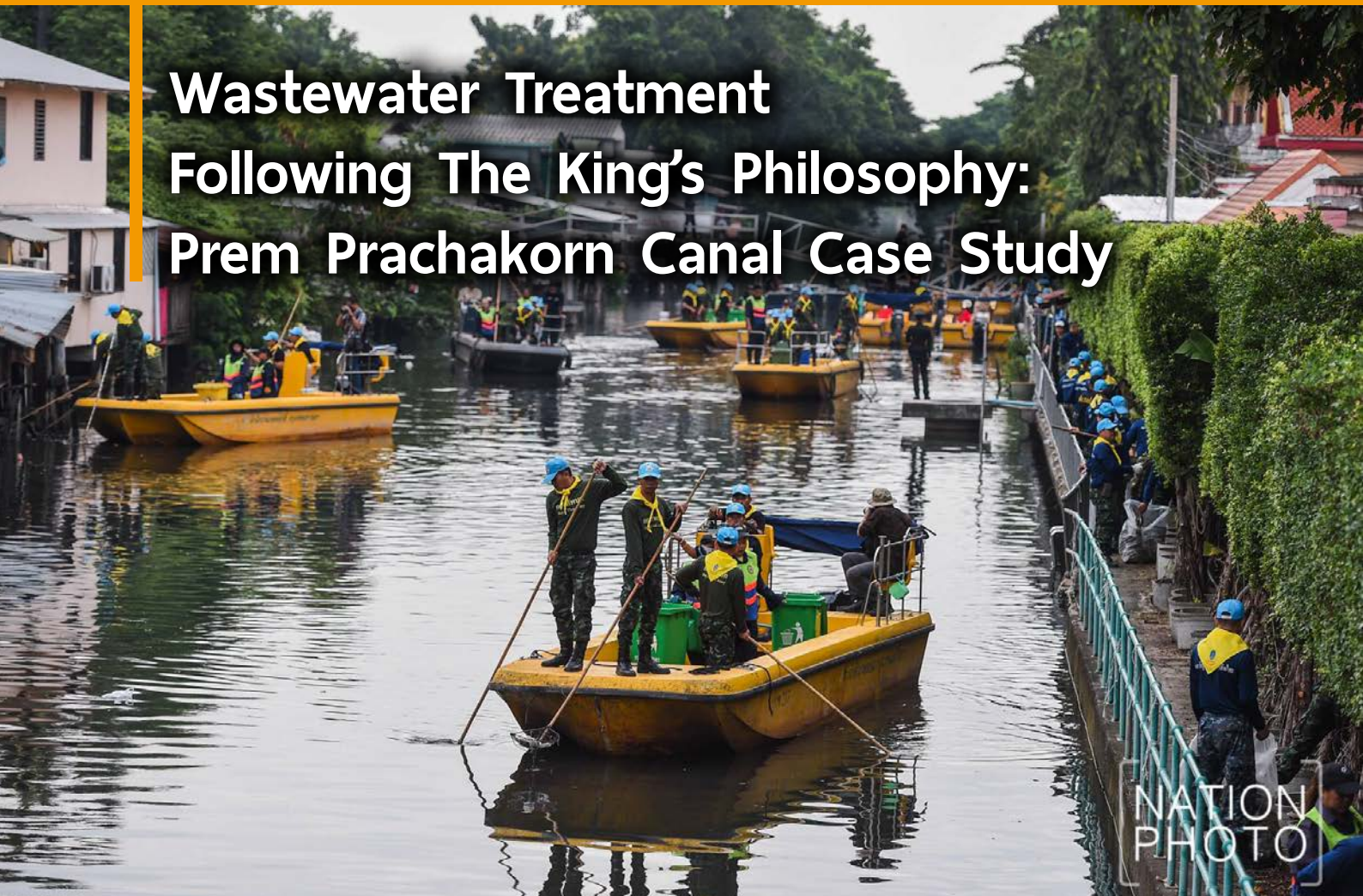
The revision of Thai certified professional urban planners was carried out following the Office of the Education Council's decision to change the National Qualifications Framework (NQF) for the urban planning profession from seven to eight levels to be compatible with the ASEAN Qualification Reference Framework (AQRF). The new framework was approved by Cabinet resolution on April 18, 2017.

Thailand's urban planning sector must now improve and manage competency assessments in line with the new professional standards. This project has also served to elevate the status of urban planning as a profession with a major role to play for sustainable urban development and quality of life.



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Wastewater Treatment Following The King's Philosophy: Prem Prachakorn Canal Case Study



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Introduction

Prem Prachakorn Canal was first dug in 1870 in the reign of King Chulalongkorn (Rama V). The canal facilitates waterway transit while also expanding agricultural land. Starting from Phadung Kasem Canal in front of Wat Sommanas Rajavaravihara beside Ban Norasing or the current Government House, the canal joins the Chao Phraya River in Ko Yai Subdistrict, Khwaeng Krung Kao, Phra Nakhon Si Ayutthaya District, Phra Nakhon Si Ayutthaya Province. The canal is 50.8 meters long (or 1,271 sens and 3 wahs in the Thai traditional measurement system). King Chulalongkorn personally donated 2,544 changs and 2 tamluengs (203,528 baht) to hire Chinese workers to dig the canal, which was completed in 1872. All the canal digging fees and canal taxes were exempted for his Royal Initiative to celebrate his honor and grant happiness for the Thai people, thus the name *“Prem Prachakorn Canal”* (meaning *‘happy people’*). In 1967, the Cabinet resolved that Prem Prachakorn Canal along with 15 other large canals and numerous canal branches were to be placed under conservation. According to this Cabinet Resolution, the width of Prem Prachakorn Canal must be kept at a minimum of 12 meters (PCD, 2021/2019).

Currently, the water in Prem Prachakorn Canal cannot be used as originally envisaged due to water pollution caused by a high population density, lack of a proper wastewater treatment system, and inefficiency in collecting urban waste. Its sole purpose in this condition is to receive wastewater from communities; water samples from the canal revealed the complete absence of dissolved oxygen (DO = 0 mg/liter). The water also had a very strong odor resulting from high concentrations of hydrogen sulfide (H₂S).

Several means are available to address water pollution. The current study focused on use of effective microorganisms (EM) to treat wastewater. EM was originated by Mokichi Okada, a Japanese researcher and founder of Sekai Kyusei Kyo. The idea of using EM started back in 1931, and a total of 80 microbial species have since been identified which are non-pathogenic and are beneficial for wastewater treatment (Wutthiudomlert, 2011).

Today, many countries have applied EM for multiple uses, including such as reducing pollutants from urban waste, improving the quality of wastewater, odor suppression, waste disposal and recycling, cleaning, and elimination of contaminants in nature such as oil pollution without impact on the environment. Furthermore, EM is also used for industrial purposes and for promoting health of humans, pets, and farm animals (Wutthiudomlert, 2011).

Given budget constraints, EM is a preferable option for treating canal wastewater as compared with conventional wastewater treatment systems, which are expensive to build and operate. Moreover, the Electricity Generating Authority of Thailand (EGAT) has previously used EM successfully to treat wastewater at 50 Pansa Mahavajiralongkorn Hospital and during flooding in Ubon Ratchathani in 2019 (Charoenmukkhayan, 2019). Moreover, the Government Pharmaceutical Organization used EM to treat wastewater in the drainage canal at the Communications Battalion 1 Royal Guard, Sathon District, Bangkok, in December 2008, also with satisfactory results. It was found that EM could reduce biological oxygen demand (BOD) to 50% within five days (Government Pharmaceutical Organization, 2011).

In order to strengthen local communities along the Prem Prachakorn Canal and manage wastewater more effectively and sustainably, this study recommends adoption of the principles originated by King Bhumibol as the implementation guideline, focusing on community participation and self-dependence. By following these overarching principles, implementation of the system is expected to be sustainable, with benefits for people, community and the environment.

Conclusion and suggestions

EM treatment of the wastewater following the King's principle in the first study area (Don Mueang Villa) revealed the following conclusions:

- 1) EM was previously shown to be effective in treating wastewater e.g. at 50 Pansa Mahavajiralongkorn Hospital, during the flood in Ubon Ratchathani in 2019, as well as in the wastewater drainage canal at the Communications Battalion 1 Royal Guard, Sathon District, Bangkok.
- 2) This approach was well accepted among communities in Don Mueang District, and relevant government agencies also gave their support to Don Mueang Villa; this community has emerged as a model for wastewater treatment and the environment of Don Mueang District.
- 3) Further development of Don Mueang Villa still requires self-driven mechanisms based on the King's principles. Specifically, there should be individual household visits so that this community can proceed independently following the approaches recommended by the project.
- 4) Apart from the successful outcome of wastewater treatment, the community also enjoyed the activities which suited their lifestyles and appreciation for simple innovations for agriculture and knowledge-based activities. Most participants in these activities were senior citizens and retirees.
- 5) The findings of this study by the researchers and the Electricity Generating Authority of Thailand contributed to knowledge sharing for community development and a sustainable society.

Development of Housing for Sustainable Human Settlement



As one of the four basic human needs, housing is also a vital component of economic development. Associate Professor Kundoldibya Panitchpakdi, Ph.D., Senior Professional Lecturer at Department of Housing, Faculty of Architecture, Chulalongkorn University, shares her knowledge and extensive experience to offer insights into development of housing for sustainable human settlement.

Definition of “Housing”

Prior to the agricultural revolution, humans lived a nomadic life as hunter-gatherers. Around 12,000 years ago, humans learned to domesticate animals and grow crops, tethering themselves to specific geographic locations. The most favoured locations were flat and fertile river plains. A surplus of food over subsistence needs led to the beginning of barter trade, and later, markets and international trade. Human instinct for art and creativity evolved over the ages into religious symbolism and education, and settlements expanded around such cultural foci to create communities, towns and then cities.

Housing became a multidisciplinary study during the 19th Century, when the industrial revolution triggered an influx of agricultural labour into cities to work in mines, mills, and factories. The shortage of housing and congestion in these ill-prepared towns resulted in slums, unsanitary conditions and epidemics of contagious diseases. In 1914, World War I destroyed huge proportion of the urban housing stock in European cities. When the war ended, the demand for housing increased enormously in the group of industrial workers.

In UK the Public Health Act (1848) established a General Board of Health to furnish guidance and aid in sanitary matters to local authorities. This was followed by the Public Health Act 1875 as an attempt to codify previous measures aimed at combating filthy urban living conditions, which caused various health threats, including the spread of many diseases such as cholera and typhus. With this, the science of housing began.

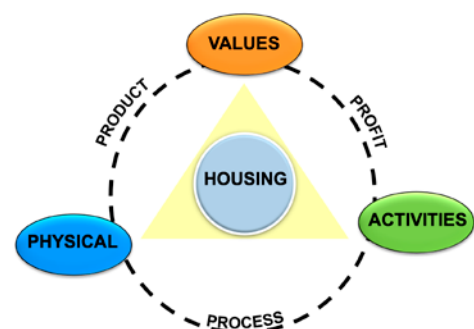
The study of housing requires a combination of knowledge from diverse disciplines in addition to architecture and engineers. Economists and financial experts are required to manage capital investments, social scientists and spatial scientists to envision and design a healthy urban community living space.

Breaking down the components of the term ‘Housing’, we can identify three dimensions, or 3Ps, as follows:

- 1) **Physical:** this refers to the ‘Product’ or type of shelter- house, apartment etc., and also to the spatial context- the type of housing community e.g. residential estate; and thirdly the zoning category (e.g. residential or commercial zone) and also unseen area housing.
- 2) **Purpose/profit:** this refers to the business of housing and its objectives- to meet human needs, but also to express differentiated human values and markets, and to stimulate the national economy through a thriving real estate and manufacturing/service sectors.
- 3) **Process/Activities:** two levels may be defined – processes for individual families and communities, and institutional processes for organizations. At the family level, owning a house requires a complex series of processes: saving money for a deposit, securing a loan, search for a suitable home that meets diverse individual needs and wants, complete the purchase and move in. Then there is a continuing cycle of maintenance, renovation and perhaps extension. Each house has its life cycle as its owner with the different needs in each stage of life. Community-based development process requires cooperation and participation by residents for housing development and community strengthening. Processes at organizational level refers to the mandates of institutions such as the National Housing Authority, Community Organizations Development Institute, and Local Administrative Organizations (decentralized under the Decentralization Act, B.E. 2542). Among financial institution, the Government Housing Bank plays a key role in domestic housing finance, placing home ownership within reach for many lower-income groups.

Housing is more than a house- it represents a fundamental human right as well as the most important and typically the largest investment we make in our lives. The real estate sector is also crucial to national economies. It is a driver of capital but also a social asset, offering a better quality of life and even ensuring that low income groups also have access to housing rather than only operate purely to maximize profits. (Inclusion of low-income housing in new urban development projects is usually mandated by local authorities rather than as a voluntary act of altruism by real estate companies).

THREE DIMENSIONS OF HOUSING CONCEPTION



Thai housing settlement in the past

"...Housing and community settlements in Thailand have historically followed topography, climate and the local ecosystem..."

Thailand's central plains offer important clues to the evolution of settlements in Thailand. Water has always been a central factor as the region is a flood basin of the Chao Phraya river; the entire region is subject to extended annual flooding from Nakhon Sawan province at its northernmost point, all the way to the coast. Traditional Thai architecture emerged from this need, with floating homes, houseboats and raised houses on stilts. Many of the latter had a sloping roof and wide terraces, facilitating ventilation in the humid tropical climate. Wood was readily available and was the main material for construction. Wood construction also enabled houses to be disassembled and relocated elsewhere.

The architecture of the 'traditional' Thai house is in harmony with its surroundings, thanks to the wisdom of our ancestors. Houses were built along the waterfront with large trees surrounding the house, providing shade and cooling, and a pleasant outdoor space for social gathering. From today's perspective, traditional Thai houses could be classed as 'eco-housing', saving energy by using renewable construction materials such as wood, which is stable and strong, with a long lifespan, multiple uses as well as the ability to recycle.

Early settlements grew into villages, and community services such as temples and schools became common as focal points for the community. Water was the primary transportation route, and markets sprung up along the river banks. Though communities grew and became more diverse, there was harmony among different ethnic and religious groups, with Chinese communities, Buddhists and Muslims all integrated within the community. This is still the case in many communities around the country, where temples, shrines, churches and mosques located in close proximity within the community.

As an agricultural country, social and cultural integration, and preservation of local ecosystems, soil and water were integral to Thai culture for many generations. House-building depended upon efficient use of natural renewable resources and conservation of natural resources. This of course stands in stark contrast to today's concrete houses, built with cement and bricks, requiring huge amounts of energy and a massive environmental and climate change impact from mining and cement manufacture. None of these construction materials used today can be recycled.



Settlements of traditional Thai houses can still be found, for example in Samut Songkhram Province, the country's smallest province where the philosophy of the Sufficiency Economy and sustainable development is highly valued and followed. The people of Samut Songkhram have tried to preserve their traditional way of life and farming while preserving their local ecosystem. Most of their settlements were located along the waterfront, starting with a single group of relatives and then extending along both banks of the river or canal. This resulted in neighborhood communities which never needed a fence. This coexistence with nature followed the Eastern philosophy that people are part of nature, as well as the Buddhist principle of respect for others, including nature.

Early Bangkok resembled Samut Songkhram, with its network of canals, Phraek and Lam Rang. Like a spider web, from large to small systematically, from a river to a canal, down to Phraek and Lam Rang. Newcomers settled and built their houses and gardens just as Samut Songkhram did. It was said "Bang Chang Suan Nok, Bangkok Suan Nai". However, adopting modern Western urban planning trends, Bangkok drained its canals and began to build high-rise buildings. Since that time, Bangkok has been plagued by regular flooding.

However, back in Samut Songkhram, communities are still trying to maintain the traditional water system based on the Mae Klong river, around which life revolves in the area. The people of Mae Klong are heavily dependent on water for daily life, orchard, domestic use and transportation. Lifestyle revolves around water, with temples, markets and meeting places served by water transport. Traditional pavilions in front of every house are used to sit and relax, welcome guests and greet passers-by.

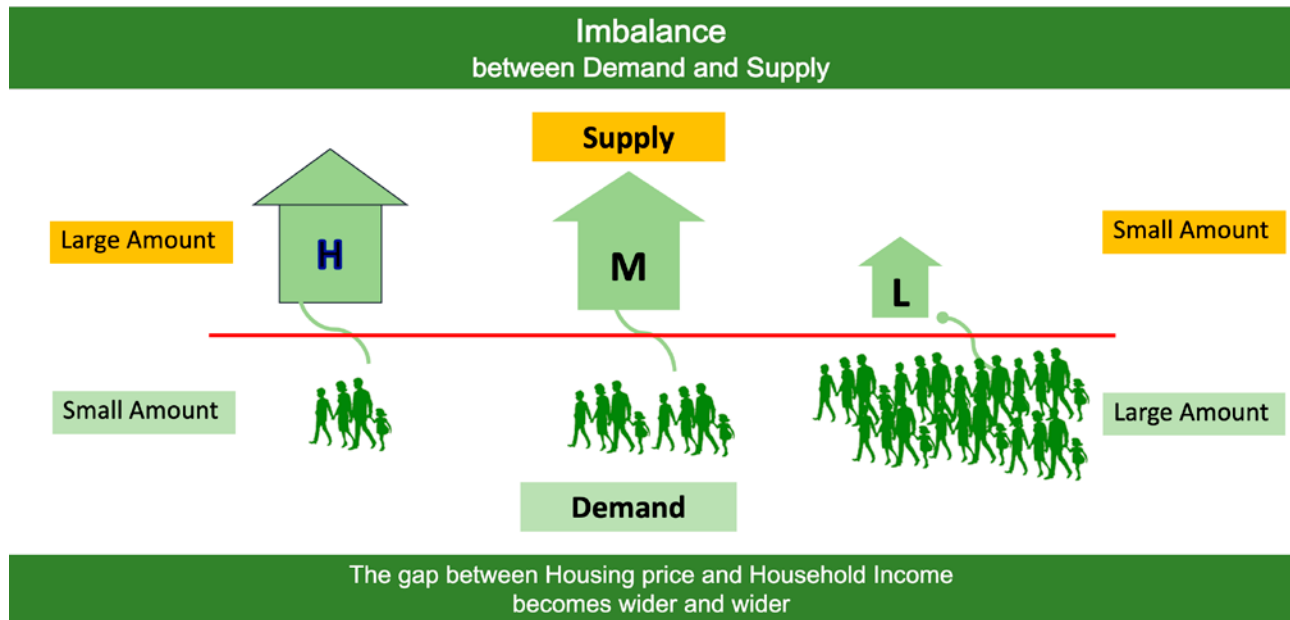
Surachit Chiravet described Bangkok as a place where they "...bring bad soil to fill good soil". When there is road construction, the house that used to face the canal is now facing the road, with their backs to the canals, which became foul and heavily polluted drainage channels. The boom in modern housing has created estates and condominiums where neighbours do not know each other. Urban living has transformed communities from a coexistence with people and nature, to an isolated society with no connection to nature and no community networks.

These fundamental differences underscore the role of housing in the social system, the economic system and the environmental system, which together define quality of life.



Today's housing market in urban Thailand

*"...Property prices are rising rapidly while growth in household incomes lags behind.
The widening gap highlights an inconsistency between supply and demand
in Thailand's housing market..."*



In order to drive a shift towards sustainable housing, it is necessary to understand the housing market. The housing market is not simply the outcome of a balance between supply and demand, but is of course subject to an array of political, legal, regulatory and financial drivers. Policies aim to achieve the twin goals of stimulating urban development while guaranteeing a sufficient and affordable housing supply, while also enhancing quality of life in urban built environments (i.e. a 'livable city').

Thai housing demand differs across household income levels, and it should be important to remember that 60 percent of urban populations are classed as low-income households. On the supply side, the private sector produces housing for more than 80 percent of the market; however, the primary target groups are mid- and high-income households. Despite reductions on build size and cost, home ownership is still beyond reach for low-income households.

The National Housing Authority and the Community Organization Development Institute are the only government agencies responsible for managing the housing supply for low-income groups. Despite availability of some support from the Board of Investment (BOI), the private sector is hardly incentivized to expand the supply of low-cost housing. The housing shortage for low-income people in Thai cities is long-standing and remains intractable. Today, even new graduates with bachelor degrees are unable to afford their own housing, and typically live in rented or shared accommodation.

To make matters worse, property prices are rising rapidly while growth in household incomes lags behind. The widening gap highlights an inconsistency between supply and demand in Thailand's housing market. A large demand for housing for low-income earners, but on the supply side, very few low-income residents are being built. This has resulted in expansion of slums and homelessness in Bangkok and other urban areas, exacerbating social and health problems and seriously impacting on quality of life.

Another important contributing factor is there is urban planning, but there is no residential plan in such planning. Urban development, in terms of economy, transportation, tourism, carry major impacts on housing demand; for example, through an influx of people in search of work in an economically thriving city. It was found that 60 percent of people arriving in Bangkok seeking work are low-income people, typically working in construction, factories and the service sector. Though essential to all economic sectors, these people are typically 'invisible' and treated more as a problem than as assets. Their housing and social needs are excluded from urban development and housing plans.

Housing should form an integral part of a comprehensive Urban Master Plan that encompasses all aspects related to enhance one's quality of urban life, including spatial and land use plans, zoning, mass transit, utilities, waste management, education and public health, environment, etc. The housing plan aims to ensure that the city's housing supply is sufficient, appropriate and consistent with the affordability of current and future households. The housing plan must identify and address housing problems; for example, by renovating a housing community that is dilapidated, crowded or unsanitary, and by establishing plans to accommodate a growing influx of all income groups, with a focus on affordable housing for low-income groups. Reform of policies and measures is needed to facilitate land acquisition/appropriation, development of essential infrastructure as well as legal and financial services. In summary then, housing plans are central to any urban development plan and master planning for every city. A city without a credible integrated housing plan is an unsustainable city.

The imbalance between housing supply and demand

Demand

60% of the BMR population
earn a household income of
less than 34,000 Baht
(average 24,463 Baht/month)

A house can be purchased for
450,000 Baht

Supply

The lowest price of

Public Housing, 600,000 Baht

Private Housing, 1,000,000 Baht

Principles for Sustainable Housing and Urban Development

“...To provide affordable housing for all income groups, urban planning and housing planning are required.

The urban planning process is multi-faceted; long-term urban development plans can only be effective and meet real needs if it embraces full stakeholder consultation from the outset, rather than as a top-down exercise...”

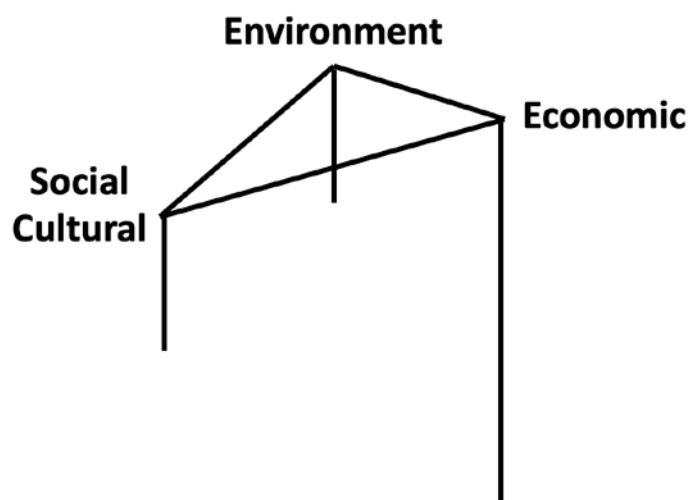
First of all, one should understand sustainable development which is defined as ‘Development that meets the needs at the present without compromising the ability of future generations to meet their own needs. Sustainable development is typically considered through its three key dimensions- social, economic and environmental. To be sustainable, development must establish a balance among these three pillars.

The United Nations Sustainable Development Goals (SDGs) is a set of 17 goals where urgent action is needed by governments, business and civil society. SDG 11 (Sustainable Cities and Communities) aims to make cities and human settlements inclusive, safe, resilient and sustainable. The UN also prioritized sustainable housing through its Universal Declaration of a New Urban Agenda, adopted at the UN Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador, on 20 October 2016. The New Urban Agenda was endorsed by the United Nations General Assembly on 23 December 2016.

The New Urban Agenda represents a shared vision for a better and more sustainable future. If well-planned and well-managed, urbanization can be a powerful tool for sustainable development for both developing and developed countries.

Placing housing at the center of urban development, the New Urban Agenda calls for a strengthened role for housing in urban planning processes at all levels, from national to city to community level, and for a shift towards an integrated housing sector. Such a perspective will help market effectiveness and ensure adequate supply of affordable housing for low-income groups. The focus on coordination and ‘joined-up-planning’ also improves effective resource allocation. Unfortunately, Thailand is still operating in a manner that lacks joint planning, integration, and collaboration.

Sustainable Housing and Urban Development



Housing @ The Centre of Urban Development

The indicators in this Universal Declaration (HIII) include: Urban indicators and Housing indicators. The urban indicators comprise the following:

- 1) Housing development
- 2) Social development and poverty alleviation
- 3) Hygienic urban environmental management
- 4) Economic development and
- 5) Good governance in city management.

Nowadays, participative planning is considered fundamentally important to the success of housing and urban development, taking into account the needs and perspectives of all key stakeholders, including businesses, communities and civil society. One of the goals of participative urban development is to drive a shift towards a more holistic approach rather than its traditional focus solely on economic development. Such a process aims to enhance quality of life in the city, while at the same time boosting the economy and protecting the environment- i.e. sustainable development.

Habitat III urban agenda housing indicators include the following:

- 1) Integrate housing in urban framework coordination of housing development within an integrated urban development framework;
- 2) Inclusive housing- housing plans that leave no one behind, regardless of income, and also taking into account the needs of disadvantaged groups such as the disabled, elderly and migrant workers and low-income households;
- 3) Affordable housing- Housing development plans must meet the needs and affordability of all income groups;
- 4) Adequate housing- Housing that is sufficient in terms of size and amenities, as well as compliance with mandatory standards including health and safety, sanitation, ventilation, sanitation and also privacy;
- 5) Redevelopment of informal settlements- Re-integration of informal housing such as slum communities and squatters occupying empty land or buildings, back into the formal system.



To create a livable, sustainable city, urban planning of course requires additional time, resources as well as additional coordination and consultation with all those affected in order to translate the needs of the people into physical, workable plans for the urban built environment. The added complexity and uncertainty of ensuring meaningful stakeholder engagement in urban planning has been a barrier to its adoption by planners and policymakers; indeed in Thailand there is a relatively low level of understanding or appreciation for this approach. Urban planning is too often viewed simplistically as a simple ‘color plan,’ to be enforced under the law.

Though by definition, urban planning and housing planning focuses on the needs of the city itself, cities do not exist in isolation, so planners must also understand the dynamics in adjacent green areas, particularly with regard to food supply. Housing planning therefore requires an additional analysis of adjacent provinces that is integrated into the overall urban development plan. The analysis provides an understanding of the links between rural and urban areas in terms of food production, transportation, distribution, communication and housing. Since many people who work in Bangkok live in adjacent provinces surrounding Bangkok or its satellite cities. The scope of the housing planning process therefore must be widened to ensure adequate and affordable housing supply in these provinces. One important constraint to supply growth is that new housing developments should not encroach on agricultural areas that produce food for the city.

Though unfortunately, urban and housing planning in Thailand has not embraced such an approach, integrated housing planning and ‘Affordable housing program’ has been adopted in major cities around the world. This reflects an increasing recognition of the fundamental human right to housing, for which the state is responsible for upholding. China, Australia, Canada and India have all adopted housing development policies that make housing affordable for low-income groups, while the United States, Japan, Singapore and Taipei have explicitly mandated a requirement for provision of low-cost housing into city planning law. Under these schemes, low-cost housing is subsidized by both federal and local governments. There may also be cooperation between the public and private sectors in the development of mixed-use real estate projects, where cross-subsidies enable real estate developers to offer affordable quality housing for households with incomes below the city’s median income according to the housing affordability index.

So-called ‘social housing’ entails state subsidies for both producers (supply side) and residents (demand side) to ensure affordability. However, some have opposed the concept because of the risk of stigmatizing low-income groups as ‘poor’ and thus widening social divides. As stated in the 2nd Universal Declaration, it is important to develop housing that leaves no one behind. A divided society will be a weak society with a higher risk of social conflict triggered by inequity.



The ‘Housing at the centre’ approach aims to strengthen the role of housing within urban planning practice. The approach aims to shift the focus from simply building houses to a holistic framework which coordinates the different phases and inputs of housing development within urban growth, upgrading and renewal interventions, especially within the main axes of UN-Habitat’s new urban strategy: the Planned City Extensions and Planned City Infills.

Thailand's current housing operations

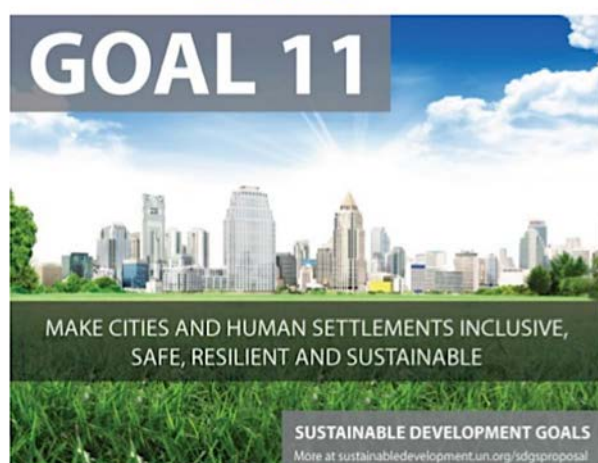
*"...historically, the approach has been to solve problems rather than prevent them.
Thailand's urban and residential development is not integrated..."*

Thailand has a number of State agencies involved in housing, including the Ministry of Social Development and Human Security (responsible for the National Housing Policy Committee, National Housing Authority and the Community Organization Development Institute) while the Prime Minister's Office oversees the Low-cost Housing Investment Promotion Committee. The Ministry of Finance oversees the Treasury Department which manages use of State land while the Government Housing Bank promotes housing development. Moreover, the Ministry of Interior oversees the city development agency, with its many departments including the Department of Public Works and Town & Country Planning, Electricity Authority, Waterworks Authority, Department of Highways, and Local Administration, etc. These agencies follow their own strategies and goals independently and lack integration to achieve, or even identify, shared goals of sustainable housing.

Thailand's housing policy dates back many years; however, it seems to be take the form of an economic stimulus policy to boost the construction sector, and has even been described as populist in its aims. Meanwhile, urban development planning processes throughout the country display inadequate formulation of housing policies and plans to meet the city's needs and emerging demographics. Today's housing operations are often no more than a short term 'sticking-plaster' solution to accommodate a growing low-income urban population. It does not take into account the broader housing market and the role of housing as a key component of urban development. This results in an ad hoc, 'project-by-project' approach to development of self-sufficient or affordable housing.

A considerable amount of information on policy making and housing planning is available in Thailand, but is scattered across multiple organizations and not organized, centralized or aggregated to support analysis and inform planning. Much of it is outdated. Information agencies have established real estate information centers and residential information centers; however, these are separate and much information is only partially available to the public.

SDG 11



SDG 11: Targets

- Housing and basic services; upgrade slums
- Sustainable transport systems for all
- Enhance inclusive and sustainable urbanization
- Protect and safeguard the world's cultural and natural heritage
- Significantly reduce the deaths and losses caused by disasters
- Reduce the adverse per capita environmental impact of cities
- Safe, inclusive and accessible, green and public spaces

Guidelines for Thailand's Housing Operation towards Sustainability

Sustainable Housing Development Guidelines for Thailand in the future must begin with building at all levels a knowledge and understanding of the importance of housing in the context of sustainable development and its multi dimensions. This will provide a strong foundation for formulating policies that integrate markets and housing into a holistic urban development Master Plan. A good starting point to synergize knowledge-sharing and build cooperation and understanding would be to establish collaborative multi-agency learning programmes and public participation schemes that engage with stakeholders. Such initiatives can bring major benefits in terms of designing policies and projects to match real needs and minimize unintended impacts, create stakeholder buy-in and mitigate project and financial risk, importance and problems of housing in their urban areas. A participative approach to problem analysis will help set a vision that is relevant and to formulation of housing policies and plans that are consistent with people's needs and the broader urban development plan. A healthy community starts with design, and the success of any sustainable housing development policy or project cannot be measured simply through its effect on Gross Domestic Product (GDP) or financial profit. Social and environmental parameters are also important indicators of success; their inclusion is essential in balancing the evaluation.

The New Urban Agenda reaffirms our global commitment to Goal 11 of making cities and human settlements inclusive, safe, resilient and sustainable.



Educational institutions and sustainable housing in Thailand

“...Institutions play an important role in expanding and disseminating knowledge. By conducting action research and by designing and following participative processes, educational institutions can advance our understanding of housing dynamics, problems and solutions at community and city levels...”

Following the decentralization of government policy in 1999, the National Housing Authority assigned Chulalongkorn University to develop plans for urban housing development through a participatory process. In order to enhance understanding and appreciation of the topic among local authorities, CU conducted research in four provinces over an 18 month period. The study resulted in a range of learnings including the differences among provincial cities in their contexts, social structures and dynamics, economic growth, needs and potential. Although residential development plans have yet to be included in municipal urban development plans, the study triggered initiation of many pilot projects to renovate homes and improve well-being at community level. The study is also considered as a model on which provincial housing plans can be developed nationwide. The body of knowledge generated and disseminated has served to stimulate interest among researchers and planners alike in incorporating new ideas into local housing development plans.

The Thailand Science Research and Innovation (TSRI) has established the Area-Based Program Management Unit (PMU ‘A’) to supervise area-based research, as well as to support both public and private agencies, including the Thai Real Estate Association Network, Thai Planning Association, educational institutions and civil society/ community groups. In addition to conducting its own research into housing development, PMU ‘A’ aims to establish an academic research consortium focusing on housing, and to disseminate learnings through public workshops.

The study of housing development and urban development is continuously evolving and influenced by fast-moving social, cultural and economic trends. A multidisciplinary and participatory process work is therefore essential as noted above, and educational institutions can serve as an impartial hub or facilitator of stakeholder engagement to support development and design of sustainable solutions to urban housing challenges.

In addition to creating networks among private and public sector stakeholders, educational institutions also play an important role in knowledge dissemination via these networks, and in shifting the prevailing paradigm that equates housing with construction, towards an approach that works towards an integrated, inclusive and socially relevant housing policy that contributes to sustainable urban development. In this regard, educational institutions are respected by stakeholders as a trusted core foundation for collaborative action. By learning lessons from current collaborative action research, city administrations can set new and broader goals for integrated urban housing policy and planning processes, and also establish processes for monitoring, evaluation and continuous improvement. Such changes align with global best practice and will advance Thailand’s broader goals towards integrated housing development plans at all levels as a contribution towards sustainable human settlements under SDG11.



Associate Professor Kundoldibya Panitchpakdi, Ph.D.,
graduated with First Class Honours with a Bachelor's degree in Architecture from Silpakorn University, a Master's degree of Architecture in Department of Housing and a Ph.D. in Urban & Regional Planning from Chulalongkorn University.



Community Settlement

How do different types of communities decide where to settle? Their objectives and priorities vary widely, for example between lowland and hilltribe communities. Lowland settlements tend to favor locations on plains, close to a waterway or seashore because waterways offer food, protection and of course a supply of water. Safety from wild animals was also a major concern, and thus proximity to existing communities became important in terms of safety and security. On the other hand, hilltribe communities such as the Sakai people in Thailand's southern provinces are driven by very different dynamics, including absence of a path towards legal land tenure or even citizenship. Other ethnic minority communities settle in the remote mountains or plateau of northern provinces such as Chiang Rai, Chiang Mai and Nan.

Some groups settle in remote, inaccessible locations due to familiarity with the local landscape, its resources and climate, as well as protection against intruders. Thailand's national security strategies and anti-communist campaigns certainly influenced settlement patterns for various ethnic groups in Nan province, which have persisted long after cessation of hostilities. Though these communities seem devoted to protection of their forest environment, the uncontrolled establishment of communities in primary forest land has led to deforestation due to expansion of farmland under shifting cultivation.

The Ministry of Natural Resources and Environment assigned the Royal Forest Department and Department of National Parks, Wildlife and Plant Conservation to collaborate in a forest study in Nan province, which confirmed this pattern of degradation of primary forests using satellite imagery. By 2014, Nan's forest area had declined from 5,103,550 rai in 2008 to 4,659,641 rai in 2014. Given the critical situation, the National Council for Peace and Order (NCPO) directed all relevant authorities to redouble enforcement of applicable laws and regulations in the battle against deforestation. As a consequence, Nan province had maintained the total forest area at 4,658,605 rai in 2016, a decrease of merely 345 rai from the previous years (before 2014), when deforestation averaged 74,000 rai per year.

Forest degradation has over the past decades been driven by clearing and burning for cultivation of field crops such as maize for animal feed. When yields started to fall due to loss of soil fertility and erosion, farmers cleared more forest to boost their incomes; ultimately, this cycle could not be sustained. Negative impacts extended beyond farmers' livelihoods, including air pollution and smog, floods, and droughts, as well as health impacts from over-use of toxic farm chemicals. Individuals, communities, and entire ecosystems were impacted due to Nan's importance as a significant upper catchment forest region. Nan's geography is defined by montane forests with only 10% of the land classified as plains. Forest degradation in Nan is driven by clearance of these upland forest lands for settlements and agriculture, which has widespread impacts on the local ecology and the quality of life of people in downstream river catchments.

Forests in the western part of Thailand are also encroached by ethnic minority groups, who without citizenship or access to resources, have survived for more than a generation in informal forest settlements, engaging in shifting cultivation. Recently their way of live has come into conflict with increasingly stringent environmental and forest protection law. A notable example is the claim to the land by the indigenous Karen people at Ban Bang Kloi in the Kang Krachan Western Forest Complex. Having occupied the area as a community for more than a century, their usufruct rights at Chai Phaen Din were to be revoked. The name "*Chai Phaen Din*" first appeared on military maps in 1912, and Bang Kloi villagers have been living in harmony with nature and engaging in low-impact shifting cultivation for 30 years before the first forest law came into force, and 50 years before the first national park legislation. In 1981, Ban Chai Phaen Din was designated as part of Kaeng Krachan National Park in 1981 and categorized as unspoiled forest. Despite this, in 1996 legislation compelled them to relocate to Ban Pong Luek - Bang Kloi Lang. Government promises of new land for farming and new livelihoods were unsatisfactory; according to villagers, some evacuees were granted plots of land, but many could not be used for rice cultivation, or were otherwise riddled with rocks. Many others received no land, either for farming or for settlement. Because of their status, the Karen have no formal access to government support services, even medical care. Some were forced to take their chances and return to Chai Phaen Din, while others stayed in Bang Kloi Lang and had to find work as unskilled laborers.

For the most part, however, human settlements are generally situated on plains that are suitable for farming rice, mango, and corn, as well as animal husbandry (cattle, swine, poultry) or fish farming (fish, prawns, and mollusks). Settlements that rely on natural resources are typically transient; when the surrounding environment changes and the produce is insufficient to maintain life, the community will relocate to a more bountiful location.

Humans live in social groups for mutual inter-dependence, united by shared languages, religions, culture, customs and traditions. The nature of our diverse settlements is based on the circumstances that led to their establishment. These are categorized as follows:



Photo by <https://themomentum.co/bang-kloi/>

Physical factors

- 1) *Altitude and topography*: Plains are generally favoured over mountainous land especially when there is a ready supply of water for farming, consumption and transport. Flood plains generally have fertile soils, allowing crops to thrive. Nevertheless, some settlements on hilly land were established for other reasons, such as deterring or repelling invaders.
- 2) *Water supply*: Access to water for consumption, farming and other uses is the most basic and most vital factor determining location of human settlements of most ancient communities. Settlements may not depend entirely on rain, rivers or lakes for their water; in areas with scarce rainfall, groundwater may offer adequate water resources to support the community's needs.
- 3) *Climate* has multiple direct impacts on people and in determining options for land use. Design of houses and lifestyles are deeply influenced by climate; settlements are much more dense in areas with a mild, predictable and habitable climate. Regions with fluctuating climates, on the other hand, are generally sparsely populated.

Economic factors

Economic factors are key to human settlements. Most economic activity requires a fixed location, that incentivizes investment in the surrounding land to increase returns to labour. The main economic activities of early settlements are summarized below.

- 1) *Crop production*: Human settlements, both temporary and permanent, began when humans first learned to grow crops, vegetables, and fruits without relying solely on hunting and gathering for survival. All forms of settlements transformed their surrounding landscapes. Shifting cultivation, relying on infertile, fragile forest soils, requires farmers to clear new forest land every few years as the soil loses fertility or is lost through erosion. Government agencies are working to end the practice and promote multiple cropping which preserves soil fertility.
- 2) *Livestock husbandry*: Livestock farming is typically practiced in areas unsuitable for crop cultivation, e.g. hilly or infertile lands. Usually, livestock farming is intensive and has massive environmental and ecological impact. Nomadic herding is extensive and has a very low environmental footprint. When it is properly managed within the carrying capacity of the land, livestock husbandry will not deplete natural resources and can even maintain a long-term ecological balance within the landscape.
- 3) *Industry*: the emergence of industries required permanent settlement, typically beginning with processing of agricultural or natural produce. Gradual introduction of new technologies led to increasingly complex operations. Although requiring a smaller land area than agriculture and livestock, industries are resource-intensive and require large amount of raw materials, fuel, labor and feedstocks, as well as convenient transportation routes to markets. The emergence of industries thus contributes to large migrations from rural to urban areas, and to the emergence of big cities and widespread conurbations.

Cultural factors

Human occupation of land inevitably impacts the surrounding environment, and also gives rise to unique cultures that are differentiated from other geographically distinct settlements. The following cultural factors are relevant:

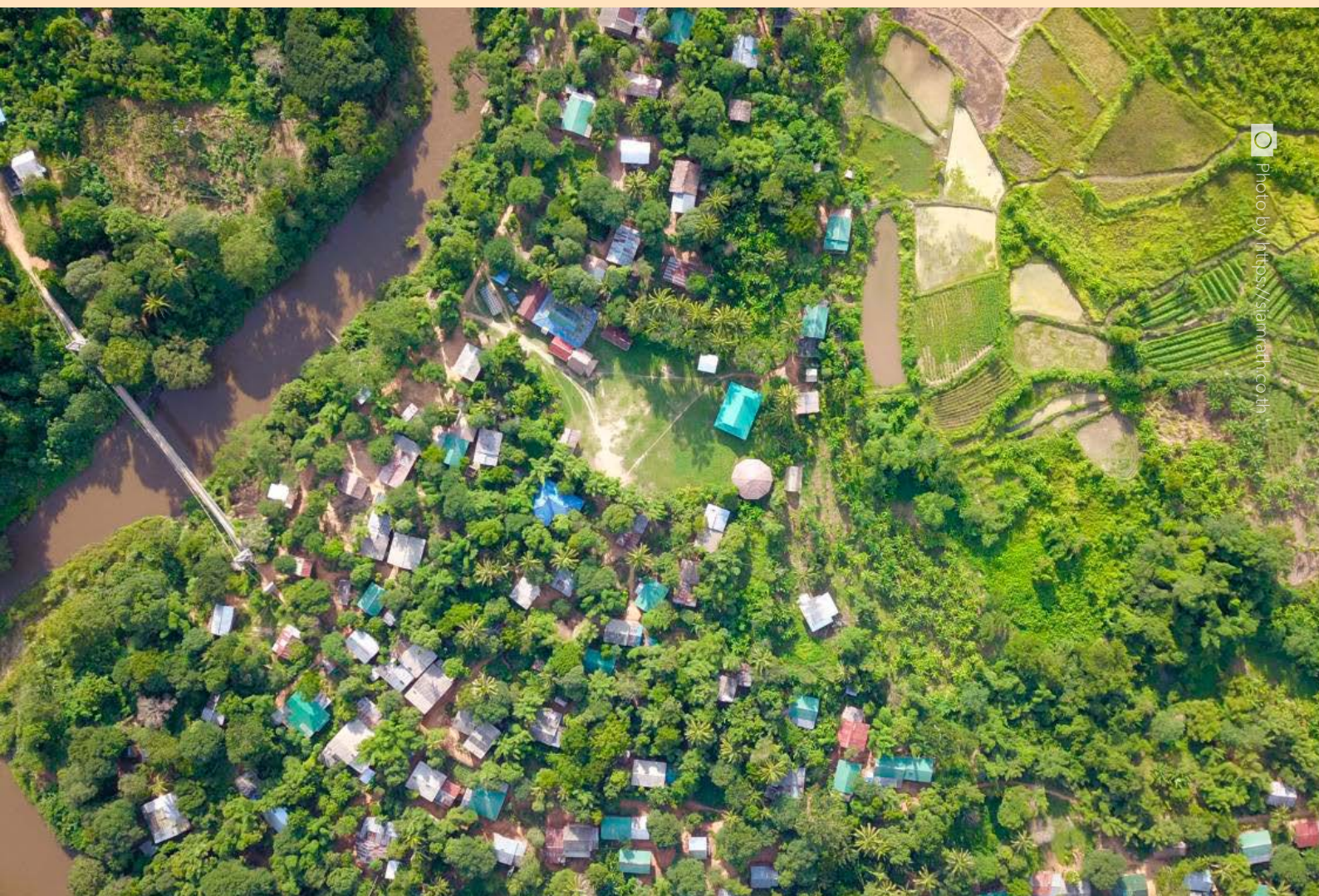
- 1) *Language*, particularly the oral tradition, is seen as a barometer that reflects the character of any culture. Language is an important channel for communicating a community's original history and culture from one generation to the next. Language is an excellent predictor of cultural differences.
- 2) *Religion* is also integral component of most cultures. Faith and compliance with religious principles shape the community's norms and lifestyle. Religious places and beings may make one community more powerful than another. Religious places such as temples, ordination halls, and other structures also exhibit diverse architectural styles, reflecting the distinctive cultural legacy of the community. In many communities, religion may shape many economic activities.

3) *Politics*, particularly land-related legislation covering land reform, natural parks, forest conservation and wildlife sanctuary designations, as well as the Royal Decree revoking forest concessions, play an essential role in determining the future of settlements. Communities settling e.g. in designated degraded forest areas face constant uncertainty as laws may be subject to amendment and are rarely enforced in a consistent way.

It is a basic condition of settlement that the land must be currently unoccupied. By default, the government owns the majority of Thailand's vacant land. State land, which is public property, is divided into four categories.

- 1) Unoccupied and undeveloped land
- 2) State land for public use such as waterways, roads, and public reservoirs
- 3) Royal properties
- 4) Restricted land

Only the first of the four categories may be used by the private sector. Even so, a private entity must still secure a number of permits and authorizations before it may hold or utilize such land. Restricted lands are typically managed by designated authorities, e.g. the Royal Forest Department is responsible for reserved forests, while conserved forests are under the oversight of the Department of National Parks, Wildlife and Plant Conservation. It is illegal for a private entity to hold such properties in Thailand as evidenced by the illegal forest invasion in Nan Province and unlawful intrusion of Kaeng Krachan National Park.





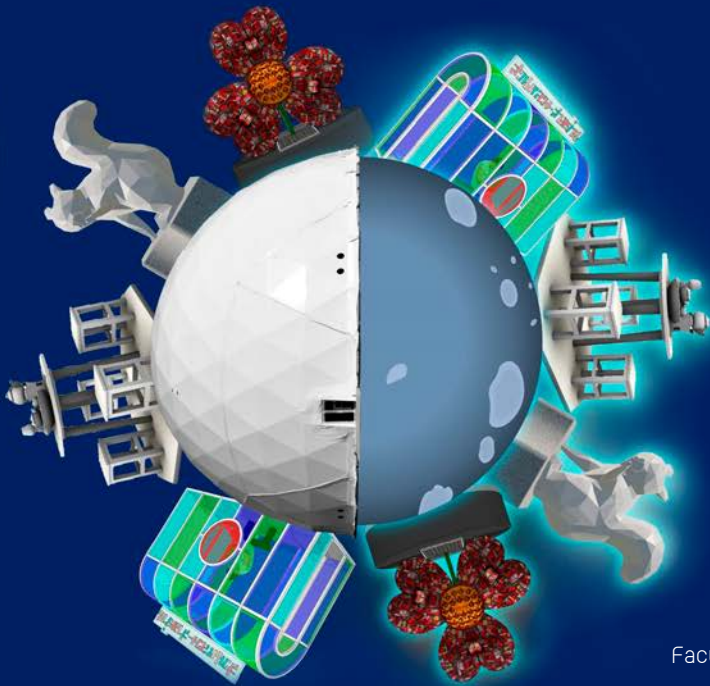
With Thailand's increasing population, competition for land and resources among individuals, various interest groups and communities are inevitable, and forests have come under increasing pressure. Selective enforcement of the law has allowed powerful investors to encroach on vast areas of forest land with impunity, while powerless ethnic groups face dire consequences. It is important that Thailand addresses this challenge inclusively, bringing all relevant stakeholders together and giving them voice. Each case needs to be addressed through a careful analysis and understanding of the situation. Without taking into account these circumstances, strict law enforcement can lead to violence and hardship, with the impact falling overwhelmingly on Thailand's poorest and most vulnerable.

To summarize, the solution to encroachment of forest or other public lands necessitates clear rules and actions by government, and a flexible approach to finding fair and long-term solutions that meet the needs of all parties. While the principles underpinning current policies are clearly appropriate, outdated and incompatible operational guidelines hamper the ability of the authorities to act in a fair and equitable manner. These concerns must be thoroughly explored. Meanwhile, any organizations or communities who wish to settle in a certain region must accept the agreement and carefully adhere to the terms or relevant laws.

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The Use of Arts & Design for Sustainable Economic and Quality of Life Development in the Sam Yan and Suan Luang Communities



Day & Night Digital Arts Park

Prof. Bussakorn Binson, Ph.D.

Faculty of Fine and Applied Arts, Chulalongkorn University

Bangkok's Sam Yan and Suan Luang communities have a long history and culture that reflect a predominantly Chinese heritage. Both neighbourhoods are famous for their old and popular restaurants and are situated in prime locations, surrounded by universities and other educational institutions. The communities have attracted major investment, and both are seen as ripe for development.

In recent years, these neighbourhoods have been enriched by newly-built spaces, such as the Chulalongkorn University Centenary Park and the FAAMAI Digital Arts Hub, the largest geodesic dome in the Asia-Pacific region, and Chula Art Town - a well-known street art project which produced vibrant murals in these two communities. With such potential, investment in these neighbourhoods for the development of art tourism can facilitate a more sustainable local economy. Moreover, the local communities of Sam Yan and Suan Luang, and both the public and private sectors, are generally appreciative of art and culture, further facilitating new projects and developments.

The Program Management Unit on Area Based Development (PMUA) of the Office of National Higher Education Science Research and Innovation Policy Council (NXPO) recognized the development potential for these two communities and provided funding for a project entitled: *"The Use of Arts & Design for Sustainable Economic and Quality of Life Development in the Sam Yan and Suan Luang Communities"*. This research project was implemented under a flagship program for sustainable development, called 'Innovative Communities for Sustainable Development' (Program 13), 'Innovations for Grassroots Economy and Innovative Communities' (Platform 4), in addition to research and invention for spatial development and the reduction of inequality.

Chula Unisearch was designated as the research institute responsible for leading this project. The research aimed to increase the capacity of these communities to learn, adopt, and adapt innovations to change and manage local problems, in order to create more self-sustainable communities. The grassroots economy growth rate and the value of community products increased by 10% through the creation of artistic innovations through a collaboration between universities that are members of the Thailand's Dean Council of Arts and Design. As a result, Sam Yan and Suan Luang are poised to become model communities that are able to generate income from a creative economy and subsequently improve the quality of life and livelihoods of all community residents. Art is a tool to achieve spatial and human development in Sam Yan and Suan Luang areas and to promote sustainable economic growth.

The project consists of two parts.

Part 1: Day & Night Digital Arts Park is an art innovation in the form of sculptures reflecting the lives of local communities in Sam Yan and Suan Luang that can be visited during the day and at night. These luminescent sculptures using solar cell are being installed in Day & Night Digital Arts Park situated between Soi Chula 42 and Soi Chula 9. There are 16 sculptures in total, which online visitors will be able to access via a virtual map. There will be an application that allows participants to meet friends in real time on digital platform.

Part 2: Art, technology, and community health knowledge-sharing workshops to foster collaboration between universities and the Sam Yan and Suan Luang communities to develop skills and knowledge in art and to take advantage of new technologies. It also aims to enhance knowledge and understanding of the importance of developing the physical and mental health and general well-being of all residents. Moreover, environmental awareness is to be raised among local residents through a range of 13 different activities.

The project is being implemented via three participatory mechanisms:

- 1) *Area development* focuses on developing an area of 4,000 square meters at Banthat Thong Road near Chulalongkorn University's Centenary Park into a digital arts centre and the surrounding area into Day & Night Digital Arts Park, showcasing artworks from this project.
- 2) *Innovation creator* focuses on creating innovative sculptures by engaging communities to elicit information and to encourage residents to express their opinions. The data collected will be incorporated in a virtual map of the park, and posted on the Google Art and Culture platform.
- 3) *Knowledge development* focuses on creating knowledge and understanding of the value of artworks, including using art to boost community well-being and raise environmental consciousness among residents. This area will also house new technologies and artworks for entrepreneurial business purposes, such as art start-ups, with the aim of creating sustainable added value to the local economy.

The research team anticipates that the Day & Night Digital Arts Park created under this project will emerge as a new landmark in Sam Yan and Suan Luang areas, that can be visited both during the day and at night. This park will also serve as a new tourist attraction for Pathumwan district and as a hosting space for art, design, and innovative well-being projects to ensure an understanding of these issues among residents in these communities. The communities also benefit from the knowledge gained from workshops, which is being harnessed to improve local businesses; young people are finding employment as guides; and new start-ups are emerging. Such businesses may include tours of the Day & Night Digital Arts Park, and paid visits to the FAAMAI digital dome, which can be operated year-round.

With such multiple and wide-ranging benefits, this newly developed Day & Night Digital Arts Park has the potential to become a new landmark that reflects the local lives in Sam Yan and Suan Luang area through a digital platform. The initiative will ensure a creative and sustainable economic future that conserves the local heritage of Sam Yan and Suan Luang and that can be recognised at both the national and global levels.





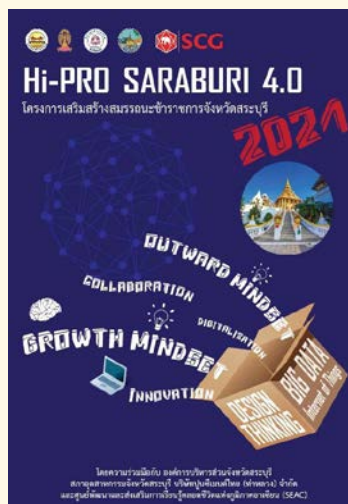
Research Contract Signing Ceremony

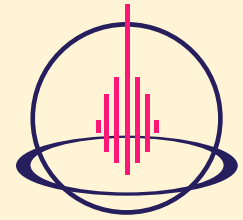
On Monday 29 March 2021, Chulalongkorn University's Department of Botany, Faculty of Science and **Chula Unisearch** recently hosted a signing ceremony with Nature Herb International Holding Co., Ltd. and Herb For You Co., Ltd., marking the signature of a research contract on the topic: ***"Research study of herbal powder and herbal extract containing Phiman mushroom for tumor cell inhibitors development"***. The contract was co-signed by Assist. Prof. Jittra Piapukiew, Ph.D., Deputy Head of Department for Administration Affairs, Assoc. Prof. Pattamawadee Yanatatsaneejit, Ph.D., Project Leader, Mrs. Nantawanchaya Pajitpapan, Managing Director and Chairman of the Executive Board of Nature Herb International Holding Co., Ltd. and Ms. Nattaya Chanprung, Managing Director of Herb For You Co., Ltd. On this occasion, Assoc. Prof. Chairat Wiwatwarapan, Chula Unisearch Deputy Managing Director and Assoc. Prof. Sehanat Prasongsuk, Ph.D., Head of Department of Botany, Faculty of Science, Chulalongkorn University also joined to witness the ceremony.

Hi-Pro Talk Events 2021

An ongoing project (Hi-Pro Saraburi 4.0) implemented by **Chula Unisearch** and partners will enhance the skills and competencies of civil servants in Saraburi Province. **Chula Unisearch** is partnering with the Saraburi Provincial Administrative Organization, Saraburi Provincial Federation of Thai Industries, Siam Cement (Ta Luang) Co., Ltd. and Southeast Asia Center (SEAC) to hold a series ***"Hi-Pro Talk Events 2021"*** streamed via Zoom and Facebook, at the Agritech and Innovation Center, Chulalongkorn University, Saraburi Campus from 26 April to 12 July, 2021.

The activity will cover a range of topics presented by some of the country's leading academics in these fields. These include proper disposal of hazardous waste (Prof. Tharapong Vitidsant, Ph.D., Department of Chemical Technology, Faculty of Science, Chulalongkorn University); application of wind and solar energy for sustainable communities (Assist. Prof. Wirachai Roynarin, Ph.D., Department of Mechanical Engineering, Faculty of Engineering, Rajamangala University of Technology Thanyaburi); psychology and public service (Assist. Prof. Panrapee Suttiwan, Ph.D., Dean of Faculty of Psychology, Chulalongkorn University); the new experience learning center (Assist. Prof. Suwithida Charungkaittikul, Ph.D., Department of Lifelong Education, Faculty of Education, Chulalongkorn University); and professional presentation (Ronnakorn Waiyawut, Ph.D., Head, Department of Sustainable Development and Leaping Innovation, School of Integrated Innovation, Chulalongkorn University).





Vaccinated, Stop spread, for the Nation

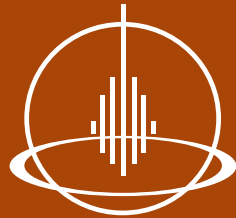
Chula Unisearch Executives and staff members have now all been vaccinated against COVID-19 under the Chula COVID-19 vaccine program. The program follows the **“pooled, safe, effective”** guidance to support the nation in building immunity against COVID-19 under the national policy (*“Vaccinated, Stop spread, for the Nation”*). The vaccinations were administered at Chulalongkorn University Health Service Center.

Photo by Freepik.com

Microsoft Word (2019) Training Program

Chula Unisearch recently organized a training program on Microsoft Word (2019) for its staff members. Held at the Self-Access Learning Center, Chamchuri 9 Building, the lecture and program was led by Assoc. Prof. Chatchawit Apornthewan, Ph.D. (Department of Mathematics and Computer Science, Faculty of Science, Chulalongkorn University). The objective was to enhance the skills of staff in making most effective use of the software’s functionality and add to the professional quality of their work.





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