UNISEARCH JOURNAL

Vol. 9 No. 3 September - December 2022

Urban Area Development

Photo by Freepik.com

Roles of Gastronomic Cultural Capital on Sustainable Urban Development and Creative Economy

The Increase of Productivity and the Raise of Living Quality of Low-income People in the Central Business District of Bangkok

Potential Assessment and Estimation of the Number of Ships and Containers from the Possibility of Connecting Sea Transport Routes in the Gulf of Thailand and Thailand's Andaman Coast.

ISSN 2465-3764

Think of... Academic Services

Think of...CHULA UNISEARCH

Academic services,
and special projects

Academic services,
research and development,
and consultancy

Human resource development
and event organization

Our highly experienced
professional team
offers academic and
project management
services tailored
to clients' needs

"We strive to bring
practical benefits to society"

Chula Unisearch, Chulalongkorn University

254 Chulalongkorn Research Building, 4th Floor, Phyathai Road, Pathumwan, Bangkok 10330

Tel : 0-2218-2880 Fax : 0-2218-2859 : www.unisearch.chula.ac.th

Editor's Note

Economic development and area development to foster national prosperity and quality of life of the people necessitate consideration of multiple internal factors, including the potential of the area itself, the needs of residents, available knowledge, tools, and technology for development, the urgency and priority of development, and management approaches. At the same time, external factors affecting the country must also be taken into account. The purpose is to determine the appropriate, effective, and sustainable development direction, strategies, and tools.

Development requires robust and comprehensive preparation and sources of capital, including natural resources as both source and the sink. In the meantime, the availability of qualified expertise is a key driver of development, efficiency and success. In addition, organizational structures, evaluation and follow-up systems, strengthening and balancing resources, and management systems need upgrading as they represent primary mechanisms to keep pace with changes, adapt to fluctuating factors, and minimize impacts on natural resources and society.

Editorial

UNISEARCH JOURNAL

Vol. 9 No. 3 September - December 2022

Published by
- Chula Unisearch, Chulalongkorn University

Contact Enquiries
Chula Unisearch, Chulalongkorn University
254 Chulalongkorn Research Building,
4th floor, Phayathai Road, Pathumwan,
Bangkok 10330
Tel: 0-2218-2880
Fax: 0-2218-2859
E-mail: unisearchjournal@gmail.com
www.unisearch.chula.ac.th

Content

Vol. 9 No. 3 (Sep. - Dec. 2022)

Roles of Gastronomic Cultural Capital on Sustainable Urban Development and Creative Economy

Photo by Freepik.com

Shusak Janpathompong[1,2] and Sutee Anantsuksomsri[1,3,*]

[1]Regional, Urban, & Built Environmental Analytics, Chulalongkorn University

[2]Department of Landscape Architecture, Faculty of Architecture, Chulalongkorn University

[3]Department of Urban and Regional Planning, Faculty of Architecture, Chulalongkorn University

*Corresponding author email: sutee.a@chula.ac.th

Introduction

Globalization, capitalism, and internationalism are homogenizing cultures around the world, and often obscure the identity and uniqueness of a specific area. Young people today value social media, technology, and global pop culture, while local cultures and local wisdom are ignored or scorned as outmoded and old-fashioned.

To preserve local art, culture, and local wisdom in the current era of rapid global change, it is important to raise awareness of the relevance and place of local cultural innovation that serves the modern social context and lifestyle of the new generation.

Cultural capital represents the core of Thailand's creative economy. Cultural capital is the cultural intangible heritage of an area that can be divided into concrete and abstract aspects, namely tangible capital and intangible capital (Bourdieu, 1984). Cultural capital and local wisdom are parts of social capital necessary for local development (Savage et al., 2018) because several regions and communities in Thailand have unique and various cultures and local experts around the country. If these capitals are fully developed and utilized, the value for Thai economy and society will be sustainably increased.

Thailand's rich cultural and natural capital includes handicraft, cuisine, handicrafts, traditional medicine, cultural tourism as well as its natural beauty and environment. Culturally diverse communities arising from Thailand's unique status as a historical crossroads among nations and a cultural melting pot, has contributed to its rich local wisdom and resourceful people.

The country's unique cuisine is a pre-eminent component of cultural capital; this 'gastronomic capital' has the potential to generate additional added value to goods and services, and could be used for economic and social development under the country's Creative Economy policy (Florida, 2003).

Conclusion and suggestions

The researchers believe that the advancement of Thailand's creative economy can be supported through promoting the country's gastronomic cultural capital and will contribute to preserving the country's rich traditions and unique local wisdom.

The Increase of Productivity and the Raise of Living Quality of Low-income People in the Central Business District of Bangkok

Assoc. Prof. Nopanant Tapananont, Ph.D.
Faculty of Architecture, Chulalongkorn University
Corresponding author e-mail: nopanant.t@chula.ac.th

Introduction

Thailand has an urbanization process caused by the immigrants from rural areas of the country and from neighboring countries who come to live and engage in economic and social activities in the cities especially Bangkok and major cities in various regions. This has created economic growth in both industry and commercial and service sectors. It has also significantly contributed to the redistribution of economic returns back to migration origins or rural areas where agricultural sector is the major economic basis. However, the rural to urban migration has resulted the rising of both social and economic inequalities. The immigrants who mostly are low-income people often have difficulty accessing employments for better income. They also have difficulty accessing quality and affordable housing as well as assessing limited public spaces in inner city areas where land value is high. Consequently, low-income people are facing inevitable problems in their quality of life.

The research project on the Increase of Productivity and the Raise of Living Quality of Low-income People in the Central Business District of Bangkok highlights the rationale for the need to formulate settlement policies to enable the urbanization process of the country and the implementation through the urban development planning of Bangkok and regional cities of the country. In addition, urban renewal and development project plans will have to be undertaken for providing employment facilities as well as affordable housing and public spaces that are suitable and sufficient to the needs. The suggestions also include the proper use of state land for state purposes and other public uses as well as the use for increasing of productivity and the raise of living quality of low-income people in the inner urban areas.

Conclusions and Recommendations

The findings and recommendations arising from the research project on the Increase of Productivity and the Raise of Living Quality of Low-income People in the Central Business District of Bangkok are summarized below.

Photo by Pexels.com

1) Policy formulation for population settlement

To support a planned urbanization process, the formulation of the 20-year national strategy, 5-year economic and social development plan, and national policy plan must be coordinated to establish a policy framework for urban settlement structures. This will be essential to manage rural to urban migration into prosperous city centers (growth poles or growth centers) such as Bangkok and its vicinity, secondary cities, as well as special economic zones located throughout the country. This must be closely linked to the planning and development of urban settlement-systems through regional and provincial policy plans, which specify population goals and the city's socio-economic roles. Moreover, the formulation of such policies and plans must also accommodate plans for urban and rural development and conservation of natural resources, environment, and ecosystems. The regional and the provincial policy plans, respectively, are thus closely linked to the plans of urban and rural development planning, as well as the conservation of natural resources, environment, and ecosystems.

2) Planning for urban development

The policies and plans for urban development specified in national, regional, and provincial policy plans will support the urbanization process by attracting rural residents from all regions of the country to settle and engage in socio-economic activities in urban centers. It is necessary to promote and support such migration particularly for low-income groups. By mandating allocation of designated areas as commercial and industrial districts, investment and employment opportunities can both be stimulated, and residential areas can be allocated to increase access to affordable housing for low-income residents in areas close to major places of employment. This will reduce the travel burden and ensure adequate housing capacity to accommodate incoming migration of low-income workers. This can be further supported by incorporating incentives in city planning processes for economic activities of low-income residents in prosperous urban centers. Examples include provision of low-income housing and increasing of public recreational areas through floor area ratio (FAR) bonus.

3) Operations for urban renewal and development

Support for economic and social activities for low-income people in growth center cities will be required in order to implement urban renewal and development plans. This will require collaboration among government agencies and state enterprises such as the Department of Public Works and Town & Country Planning, National Housing Authority, Community Organization Development Institute (Public Organization) and others, including engagement with affected community residents. In this regard, planning and implementation of urban renewal and development projects in centers of prosperity (as specified in national, regional, and provincial urbanization policy plans) will prioritize designation of areas for economic activities including manufacturing, trades and services. It will also be necessary to include residential and public spaces including mixed use and mixed income areas to boost productivity and quality of urban life.

4) Land Use of State Land

In Bangkok and major cities nationwide, state land is owned by government agencies and state enterprises, including land of the Crown Property Bureau. State land could be usefully designated to support economic and social activities of low-income people. Government agencies, particularly the Treasury Department, with the authority and responsibility to supervise the use of state land, must coordinate with government agencies to foster this process in a systematic and effective manner following a detailed analysis of future demand for state land by their respective agencies, and identifying parcels of state land that could be redesignated to support entrepreneurial activity for low-income groups. Moreover, surplus parcels of land owned by the Crown Property Bureau could be utilized for public benefit and recreation, such as public parks, city squares, etc.

5) Real estate price control

An adequate supply of affordable housing is essential to ensure wellbeing and productivity of low-income people in Bangkok's urban commercial districts. Actions are also required to facilitate access to economic and social activities. These tasks fall within the responsibility of several agencies, including the Bangkok Metropolitan Administration, the National Housing Authority, Community Organization Development Institute (Public Organizations), as well as other relevant government agencies and state enterprises including those that own or operate on state property. Such a coordinated plan will ensure harmonious absorption of low-income earners in Bangkok's central business districts and boost their contributions to the city's economic and social activities.

In this regard, government agencies and state enterprises owning or using state land in Bangkok's commercial areas should create a leasehold category within the rental property market to support the economic and social activities of low-income people. Ownership of such leasehold property is non-transferable and would be priced at 30-40% below those of freehold properties. As a result of an increase in the proportion of rental properties, low-income people will benefit from greater access to affordable occupational and living spaces. The change will also help to reduce pressure on rental and purchase prices for privately owned properties, making these more affordable for middle-income households.

Photo by Pexels.com

Article

Potential Assessment and Estimation of the Number of Ships and Containers from the Possibility of Connecting Sea Transport Routes in the Gulf of Thailand and Thailand's Andaman Coast.

Prof. Supot Teachavorasinskun, Ph.D.[1,*]
Assoc. Prof. Sompong Sirisoponsilp, Ph.D.[2]
Assoc. Prof. Chackrit Duangphastra, Ph.D.[3]
Miss Wisaluk Sanyalukruechai[4]
[1,*]Department of Civil Engineering, Faculty of Engineering, Chulalongkorn University
[2]Chula Logistics and Supply Chain Management Interdisciplinary Programs
[3]Faculty of Commerce and Accountancy, Chulalongkorn University
[4]Independent Researcher
*Corresponding author e-mail: supot.t@chula.ac.th

Introduction

Enhancing connectivity between the Gulf of Thailand and the Andaman Sea is regarded as an important trade and security strategy. However, connecting the two coasts through major transport infrastructure projects may have wide-ranging ramifications not only for Thailand and the ASEAN region, but also for global transportation systems and supply chains. Although Thailand has long mulled the possibility, previous proposals for various types of large-scale infrastructure projects failed to garner sufficient support as they did not satisfy the needs of diverse stakeholder constituencies. The current feasibility study on transportation and travel between Thailand's Gulf and the Andaman Sea therefore takes a different approach, by first defining key issues and potential impacts for each relevant sector. Armed with both quantitative and qualitative analyses, the study aimed to propose potential solutions and recommend appropriate approaches to the challenges identified, including policies and strategies that help ensure interventions meet stakeholder needs in an equitable and balanced way.

An important question in this regard is how connecting the two coasts can create wealth and security for the southern region and contribute to national GDP. An advisory group was established, which proposed four alternative approaches to connecting the two coasts. The viability of all four approaches was tested through experiments and models to assess outcomes for marine transportation, regional and economic development and impacts on livelihoods, communities, as well as the environment and national security.

The study findings indicated that the optimal path was to develop and enhance the capacity of existing infrastructure so that it can better support both local and regional connectivity. This article presents the results of an estimation analysis of the number of ships and containers expected to pass through the new connecting routes, based on various scenarios identified.

Conclusions

The study integrated various approaches to determine the true needs and values of all relevant stakeholder groups and to recommend feasible alternatives. The Advisory Board's estimation analysis of ships and cargo volumes projected to transit the various types of seaways yielded important conclusions. Specifically the study found that the maritime model for the route passing through the Malacca Strait (currently the main route connecting the two coasts), can be classified into three modes: Western (West-West) Shipping, Eastern (East-East) Shipping, and Sailing through the Strait (West-East and East-West). Factors affecting number of ships and volumes for each mode was evaluated.

Area Development Planning for Sustainable National Development

Photo by Freepik.com

Assist. Prof. Nattapong Punnoi, Ph.D., Assistant Dean, Faculty of Architecture, Chulalongkorn University, shares his insights, discusses challenges in area development planning, and presents case studies to direct urban development towards sustainability.

The situation of urban planning in Thailand

"...Concerns over the effectiveness of urban planning in Thailand reflect a need for negotiation and agreement on coexistence and allocation of limited resources to foster sustainable development and equitable sharing of benefits for all groups of people..."

For more than 50 years, Thailand's Town Planning Act B.E. 2518 (1975, amended in 2019) has empowered the State to formulate and develop town plan. Urban planning is an area management process to maximize the efficiency and sustainability of available resources such as land, natural resource areas, cultural heritage, and public and private budgets. The aims are to increase efficient use, improve the quality of life inclusively, and lead to sustainable development. In general, urban planning is legislated as an agreement for everyone in society to work together to protect the interests of themselves, those around them, and the country as a whole.

Despite this legislative and regulatory framework dating back over 50 years, the country has generally failed to make good use of the available town planning mechanisms and resource management services to upgrade people's quality of life and improve economic growth. This disregard for integrated area management as a guiding principle may be attributed to several factors. First, Thailand 50 years ago had a small population compared to its abundant resources. As a result, there was minimal pressure on land management services, resources, and governmental investment. Second, Thailand has historically suffered less from natural disasters and other climate change impacts than its neighbours. From 1977 onwards, Thailand enjoyed a long period of economic prosperity compared with its neighbours due to its strategic location; an investment-friendly government attracted major international investment. As a result of the focus on economic growth above all else, since as far back as 1957 social and environmental protection have lacked both internal and external drivers. While economic growth continued, there has been little real appetite to prioritize spatial planning for worthwhile, timely, and beneficial use of natural resources, land, and cultural heritage Investment in settlement and infrastructure for all groups of people.

Thailand's run of good fortune was brought to an abrupt halt in the late 1990s by the Asian financial crisis, which engulfed Thailand. The so-called 'Tom Yam Kung' crisis caused profound and long-lasting damage to Thailand's economy and society. From that time, financial recovery cast a shadow over protection of the environment and natural resources on the country's policy agenda. Since the late 1990's the forest area has been greatly depleted, and industry has encroached on prime agricultural land as industry began to replace agriculture as the country's main economic foundation; unfettered industrial growth was of inevitably followed by an increase in pollution, contamination and land degradation problems.

In the meantime, Thailand's comparative advantage has declined as the economic competitiveness of surrounding countries has grown to the point where Thailand began to lose its attractiveness to foreign investors. With increasing pressure on natural resources and increasing climate impacts, the need for integrated resource management and area planning became increasingly recognized. As a consequence, after 2002, government agencies, business sectors, and civil society began to focus on area management, giving rise to the idea of applying urban planning methods to management in order to achieve more sustainable development in economic, social, and environmental aspects.

Source: The development of smart city related to rail transport system, energy and environment project by PTT Plc. and Chula Unisearch

Still, the public sector has been slow to respond to this growing urgency and remains underfunded and under-resourced on critical areas such as pollution control. However, over the past 15 years, Chulalongkorn University has played a significant role in building a body of knowledge to drive Thailand's urban design and planning as a component in regulating and promoting international quality urban development, particularly in urban planning and development mechanisms. Chulalongkorn University has always had human resources with public sector experience in urban planning contributed to a major turning point in Thai urban planning with the promulgation of the Ministerial Regulation on the Bangkok Comprehensive Town Plan B.E. 2549 (2006). The Act was intened as an international-standard framework for regulating and promoting urban growth and has been instrumental in driving a process to transform Bangkok from a car-dependent city to a metropolis serverd by an efficient, inter-connected mass transit system. Although government and business have yet to witness the full impact of the city's area management plan dating back to 2006, regulating and supporting growth through urban planning processes in Bangkok has resulted in residential and commercial structures that are more in line with the expansion of Bangkok's mass transit rail system. Travel has become more convenient and inter-connected, and the State's investment has also seen a profitable return. Nevertheless, the 2011 flood had a huge detrimental impact on the national economy and livelihoods, including in Bangkok and surrounding areas. This sparked a societal controversy regarding the efficiency of city planning in managing urban development because it was discovered that the provinces around Bangkok, in common with many provinces nationwide, had yet to enact urban planning regulations, resulting in unfettered urban sprawl within disaster-prone zones.

These revelations prompted growing public interest in urban planning and its relevance for quality of life in both urban and rural areas. Increasing attention was also given to its role in economic development, impact on natural resources and the environment, traffic congestion, air quality, and in Bangkok, the lack of public and green spaces in the city. Factory explosions exposed the failure to effectively segregate industry from housing zones. Aside from the impact on Thailand's attractiveness for inward foreign investment, society began to pay greater attention to urban planning as an area management tool improve quality of life and livelihoods. which had declined so much that many working-age professionals and students began to return to their provincial hometowns due to economic problems. Changing lifestyles have also been a factor driving this exodus, with a new generation with aspirations to upgrade their quality of life, improve the local economy and contribute to society at large. Meanwhile, advancements in ICTs, social media and internationalization of Thai people have raised awareness of the need and potential for robust city plans, exemplified by their success in other countries. Effective area management also enhances equitable access to resources and reduces social disparities.

Increasing internationalization has escalated criticism of the quality and effectiveness of Thailand's urban planning framework from all corners of Thai society and the media, highlighting the urgency of the problem. The government is now under pressure to facilitate a collaborative approach among corporate, and civil society stakeholders in order to establish fair and open processes for negotiating resource allocation, zoning and other key pillars of urban planning, in order to address multiple economic, social, and environmental issues and drive sustainable urban development that actually provides opportunities and benefits to all groups of people.

Source: The strategy of developing MICE industry to encourage creative economic and sustainable urban development in Phetchaburi and Prachuab Khiri Khan province project by Thailand Convention and Exhibition Bureau and the Faculty of Architecture, Chulalongkorn University

The importance of urban planning for the development of Thailand

"...Today, urban development policy formulation and urban planning are key processes for generating economic oportunity, creating a liveable urban environment, vibrant commmunities and harmonious coexistence with the environment..."

Against a backdrop of macro-level economic, social, and environmental developments, both globally and domestically, the challenges described above are increasing pressure to expedite planning and design of quality town plans for efficient and sustainable resource use. For example, Thailand's transition to an ageing society necessitates specific consideration of the quality and efficiency of public services, including transportation, healthcare, and education. The socioeconomic inequities caused by traditional economic development highlight the need to generate new economic oppportunities for young people, small and medium-sized businesses, and local economies. Climate change has compelled Thailand to prepare for unexpected calamities. Thailand has been obliged to accelerate investment in infrastructure and regulatory upgrading in order to keep pace with rapid growth in competitiveness of its neighbors in Southeast Asia. Most importantly, rapid and pervasive advancement of technology and innovation has compelled Thailand to place greater emphasis on strategic planning in order to cope with both the positive and negative consequences of global economic and social instability.

However, Thailand has several key comparative advantages over its neighbors and other competitors around the world, particularly in terms of its abundant natural resources, which have established Thailand's global position as the 'Kitchen of the World'. The country's location is also well suited as a strategic hub for logistics, infrastructure, and labor to support economic development in manufacturing, trade, tourism and other services. Furthermore, an ambitious investment plan to upgrade Thailand's railway system provides a well-overdue opportunity for Thailand to reform the urban development system to boost competitiveness and catalyze green city development. The most essential aspect of this investment is that it catalyzes broad economic growth; new transport linkages create new economic opportunity for cities, towns and their residents, who will now need to adapt and establish strategies to exploit the benefits of this infrastructure development.

At present, urban planning is a key tool for managing limited resources to create and optimize economic opportunities for urban populations, not only in terms of economic livelihoods but also to create urban communities that are liveable, safe, comfortable and supportive, and ensure a balanced coexistence between people and the environment. Consensus-building stands at the heart of urban planning, who increasingly must find efficient ways to live together in closer proximity and allocate available resources efficiently, equitably and sustainably. As such, the challenge inherent to urban planning is beyond a technocratic or knowledge-based approach to resource management. It also entails creating norms and widely-agreed processes that enable various groups of individuals to negotiate in good faith, with a common aim to reach a consensus based on mutual benefit and peaceful co-exsistence.

Application of knowledge in urban planning for national development

"...Thailand still needs to build a larger body of knowledge for area planning, management, and development in order to achieve desirable outcomes for Thai society..."

One benefit of Thailand's delayed start in adoption of urban planning is that we can learn from successes and failures elsewhere in the world, and avoid making the same mistakes. Nevertheless, such success stories in cities around the world cannot guarantee their success in the Thai context. Urban planning requires development of a body of knowledge suitable for the specific context of each area.

In Thailand, urban planning and policy formulation may therefore require modification of successful models from other countries, according to local context covering policy, economic and social drivers. Thailand must therefore generate knowledge specific to the Thai context to gain a better understanding of how introduced models might be impacted (both positively and negatively) by the local context.

Building knowledge on urban development policy in the context of Thailand may help Thailand become a pioneer in area development knowledge for emerging countries in Southeast Asia and beyond. The structure of the city will be improved in response to changing global economic and social systems as well as increase its resilience to environmental and climate change.

Research and development for area development in the future

"...Policymaking for urban development requires practical research data so that researchers can understand the needs of stakeholders, monitor changes in the local area and evaluate the results for further improvements..."

Urban development incorporates two main approaches: new development and urban renewal. New development means a transformation of rural and agricultural areas to create a structure for settlements and economic activities. As the term implies, urban renewal is the process of introducing improvements to existing urban areas to revive the economy, create a liveable environment and manage natural resources more efficiently. Thailand needs further research to expand our body of knowledge in both these approaches.

With urban development as a crucial pillar of human society, almost every field of study in Chulalongkorn University carries implications for urban development. The sciences and engineering are of course most directly important for infrastructure development, with medicine and education essential to uplifting quality of life. The study of building and environmental design in the Faculty of Architecture and the Faculty of Applied and Fine Arts contribute to creating resource-efficient, convenient and aesthetically pleasing built environments. The Faculty of Economics and the Faculty of Commerce and Accountancy generate crucial expertise and knowledge in designing economic and business models for resource allocation that attract public and private investment, which will contribute to sustainable development for investors, society, service users, and the country as a whole.

It is therefore clear that policymaking for urban development requires multidisciplinary approaches. A key process for developing the required body of knowledge is to unlock new opportunities for researchers from various disciplines to work together to understand the frameworks and needs of stakeholders and conduct imaginative social experiments that align with local contexts. To do so, academic institutions must collaborate with relevant public, private, and people sectors to transform theory into practice, monitor outcomes and evaluate new models for future improvements to policies, frameworks and processes.

Effective urban planning requires an intimate knowledge of the actual urban locality. It is safe to say that Chulalongkorn University is well-positioned in this regard due to its location in the heart of Bangkok–, while its other campuses can drive development of proivincial urban centres. The Bangkok campus is surrounded by a thriving mix of commercial activity, urban residential areas and public spaces– truly a 'living laboratory'. Chulalongkorn University is actively engaged in driving the conversation and shaping local areas through innovative pilot projects in the area that support our common goal of a livable and sustainable urban development for Bangkok.

Rama IV Road and the body of knowledge in sustainable development

"...Chulalongkorn University has potential to develop new knowledge in urban development and transform this into practice. Its location in Central Bangkok is ideal as a living laboratory to pilot new area development projects, and create new spaces for collaboration..."

Educational institutions play a crucial role in urban development. Examples in several countries indicate that collaboration among academia and public and private sectors generate positive outcomes for the economy, society and environment. For example, the University of Tokyo, locally known as Todai, has collaborated with the Chiba local administration, real estate developers and landlords to develop the area around the Kashiwa No Ha Station into a Smart City to address its 'super-aged' society. The initiative also aims to boost the local and national economy, enhance energy efficiency, establish an effective disaster response system, address waste management, and promote a shift to public transport. As well as benefiting Kashiwa No Ha city itself, the initiative emerged as a smart city model for other towns in Japan and elsewhere and contributed to a strategy to develop and export Japanese innovation. Moreover, the project was also an effective mechanism for developing knowledge and human resources, including lecturers, researchers, and students for future urban development through research and experimentation.

Chulalongkorn University has a high potential for developing knowledge in urban development Its campuses in Bangkok, Saraburi, and Nan stand ready to serve as area development labs for staff and students collaborating with the public and private sectors. Across the three campuses there is special interest in conducting research into different areas of urban development- for Nan Province there is a focus on the inter-relationship with preservation of cultural heritage, forest resource areas, and agriculture, whilst in Saraburi the focus is on land development in the context of agriculture, industry, and logistics. In Bangkok research proritizes development of the area surrounding the main campus, which is the central business district of Bangkok along Rama I Road, Rama IV Road, Banthat Thong Road, and adjacent areas.

Rama IV Road is an important focus for urban development in Bangkok. By 2029, when all Bangkok Mass Rapid Transit lines will be finally completed, five stations on the Mass Rapid Transit (MRT) Blue Line located on Rama IV Road will generate an additional 838,000 passengers per day. The interchange station with the Blue Line at the Sala Daeng intersection will have 413,000 more passengers per day. These projections indicate that by 2029, the rail mass transit system will result in more than 1.2 million people traveling through the Rama IV Road area per day. In addition, along Rama IV Road, there are currently a number of real estate development projects for both residential and commercial purposes, including THE PARQ project at Khlong Toei intersection, the FYI CENTER office, ONE BANGKOK project at Lumpini intersection, Central-Dusit Thani Project at Silom intersection, and SAMYAN MITRTOWN project at the Sam Yan intersection. The area is also home to shops, fine-dining restaurants, offices and residential buildings, a large park, a major hospital, a top university, and the country's major convention center, all concentrated in the area. Chulalongkorn University has a plan to develop the Suan Luang-Sam Yan area into a smart city and an area to stimulate innovation development. It is predicted that in the future Rama IV Road will attract more people both Thais and tourists, coming for work, study or leisure.

Land ownership in each area on Rama IV Road is dominated by government agencies, the private sector, civil society and educational institutions. The development direction of Rama IV Road in response to future trends will therefore hinge largely upon the decisions, planning, and design of the landlords and operators of these institutions.

Photo by Freepik.com

Given its strategic importance for Bangkok's urban development, Rama IV Road was selected for priority study by Chulalongkorn University's area-based education and research programme. This has enabled academics and students from various fields to co-create development ideas to meet identified needs in the areas of economic and social development, integrated environmental protection in the area. If Chulalongkorn University can act as a hub to coordinate cooperation among government agencies, the private sector, and civil society to plan, fund, and drive development in this knowledge-based space, it will create a great opportunity for staff and students to play an important role in developing knowledge in area management to promote sustainable development. To realize this goal, Chulalongkorn University needs to act now to prepare in terms of its organization, personnel, and budget to facilitate and encourage lecturers, researchers, and students from all fields to work together effectively and to collaborate with external stakeholders in creating joint research topics to stimulate the use of knowledge to truly meet the needs of social and national development.

The next step for education and research to make a positive impact on society

"...Education and research can create a positive and tangible impact on society. It requires genuine participation among educational institutions, government, businesses and communities in which all parties must perform their roles seriously for the greater good..."

Economic and social change requires the university to focus on development of knowledge that has a tangible or direct impact on social development. As a result, faculty members in every field should play a greater role in implementing social development projects in collaboration with government agencies, the private sector and local communities. In practice, the university may play the role of knowledge development and planning agencies, collecting and analyzing field data and designing effective troubleshooting mechanisms. Government agencies should act as users of the knowledge gained to formulate enabling social policies and regulations. On the other hand, communities and private sector actors contribute insights into the real-world challenges they face in society and as users of knowledge to implement solutions and develop new values. Education and research can create a positive impact on society in a direct and tangible way. However, this requires genuine participation among educational institutions, government, the private sector, and communities, in which all parties must perform their roles seriously and for the greater good.

From the perspective of a scholar in area development planning and urban planning, I sincerely hope that the cooperation between Chulalongkorn University and stakeholders from the public, private, and people sectors in driving forward education, research and experimentation on area management knowledge in real locations will happen soon so that Chulalongkorn University's research can lead to economic, social, and environmental development in Thailand systematically, bringing real and inclusive benefits for all groups of people in Thai society.

Assist. Prof. Nattapong Punnoi, Ph.D., graduated with a Bachelor of Engineering, a Master of Engineering, and a Doctor of Engineering in Urban Engineering from the University of Tokyo. He specializes in strategic design and planning for urban and social development.

"Around us"

Assoc. Prof. Thavivongse Sriburi, Ph.D.

Coastal Erosion Management

Photo by Freepik.com

Thailand's coastline on the Gulf of Thailand and the Andaman sea extends along 24 provinces with a total length of more than 3,000 kilometers. Tourism has grown very popular, with the sea and beaches as a major global draw. Many beaches have been developed as tourist destinations as a result. However, industrial zones have also emerged along these same coasts, suggesting that both the government and private sector value industrial development above environmental conservation. Damage to beaches and natural ecosystems resulting from industrial development is generally hard to reverse. It is therefore of paramount importance to establish and enforce an utilization plan for land connected to beaches. Also, a clear beach zoning plan is essential to combat coastal erosion caused by poorly regulated development projects.

There are many such development projects along the coastline, both large and small. With weak regulatory oversight, these projects give little attention to potential adverse environmental impacts such as coastal erosion, whether in the vicinity of the site or elsewhere (end effects). Coastal erosion in Thailand has accelerated due to other factors too, particulary climate change and abnormally strong winds. The problem is exacerbated by human activity such as structural constructions protruding into the sea and inappropriate use of coastal areas. For many years, relevant agencies have implmented numerous preventive measures to battle coastal erosion, with mixed results.

The most obvious impacts are evident in tourist destinations, where the natural beauty of Thailand's beaches are globally renowned and generate substantial economic value locally and nationally. Uncontrolled construction of buildings, piers and other tourism-related structures by private developers add to the coastal erosion problem. In the meantime, central and local government agencies are also developing tourism facilities such as roads and service buildings in coastal areas. These facilities bring about numerous challenges, including coastal erosion, necessitating corrective measures. The most common and simplest measure is to use more robust construction standards without considering potential for adverse impacts such as degraded beach aesthetics and further erosion due to human-built structures.

However, many such measures have failed to prevent coastal erosion and protecting beaches and have is not suitable, it will fail to prevent the problem and have proven to be an ineffective use of the public budget. For coastal management to be effective, successful, and sustainable, a feasibility study is needed to assess workable options to prevent or mitigate coastal erosion through an integrated, collaborative approach to coastal area management among all relevant agencies and private sector actors.

The Department of Marine and Coastal Resources, the responsible agency, has identified a number of preventative and remedial measures, set out in its Guideline for Planning or Projects to Prevent and Solve Coastal Erosion. This proposed approach comprises of the following three phases of activity.

Phase 1 – Selecting the area: This phase aims to select key areas experiencing significant coastal erosion that require preventative or remedial measures. Selection criteria are based on analysis of the status of coastal erosion, other local conditions, and the socio-economic significance of the area.

Phase 2 – Determining approaches: Selected approaches must be suited to local conditions, considering the advantages and disadvantages of the selected technologies and their impacts on the surrounding environment, ecosystems, rare marine species and impacts on all stakeholders. Having evaluated this context, an action plan or project proposal will be submitted for approval.

There are four primary approaches cuurently available to prevent and rectify coastal erosion.

1) Coastal equilibrium by natural processes
2) Coastal rehabilitation
3) Coastal erosion provention
4) Coastal erosion solution

Phase 3 – Care, maintenance, monitoring, and evaluation: In this phase, a corrective and maintenance plan is prepared to ensure that any protective structures continue to work effectively and to monitor and evaluate post-implementation impacts. The purpose is to gain an understanding of the pace, nature and local drivers of coastal erosion and to continuously monitor the project's effectiveness. If the problem persists and is not responding to the selected intervention(s), a review may be needed to identify an alternative solution.

A number of alternative approaches to coastal protection have been proposed by relevant agencies, includeing 'hard' and 'soft' coastal protection structures. The most frequently used approaches are listed below:

1) Setback zoning
2) Coastal reforestation
3) Sand bypassing
4) Beach nourishment
5) Sand fence
6) Geotextile sand containers
7) Revetment
8) Gabion
9) Concrete revetment
10) Stepped sloping concrete revetment.

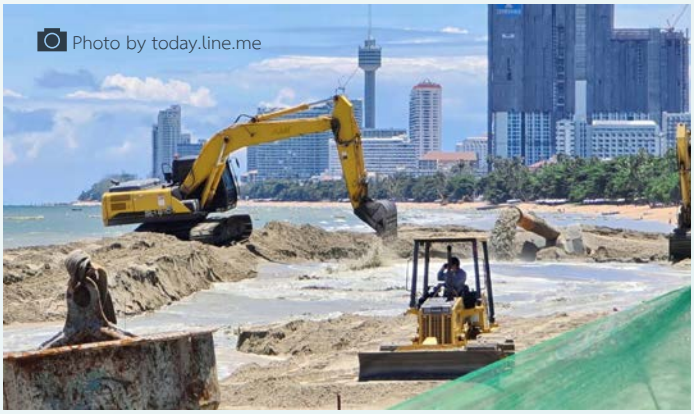
All ten methods above are hard structures, all of which have been applied in practice for many years, mostly in combination. However, the use of setback zoning as a coastal land use measure has yet to be adequately studied.

Setback zoning is an approach to re-establish coastal equilibrium by natural processes. It requires establishment of a suitable buffer distance and appropriate land use, reflecting the severity of erosion. This technique is suitable for coastal areas that have no activities with high economic value. Setback zoning has the key advantage of minimal use of technology, as it is reliant upon appropriate land use to stabilize the land. Therefore, it does not have unintended impacts on other areas. However, this technique also has drawbacks. To determine optimal setback distance requires an appropriate assessment of coastal erosion. If the erosion rate is continuous and the coastal ecosystem changes continuously, the opportunity to use the setback area may be lost and could result in high operational costs (e.g., relocation of homes, roads and other buildings) away from the area. Therefore, the setback zoning technique is challenging to apply in practice.

Coastal or mangrove reforestation is another widely-used measure to re-establish and stabilize the coastal equilibrium by natural processes. The roots of mangroves and other suitable plants help to bind the soil, sediment and sand, while the trunks and leaves slow down the action of wind and waves. Coastal reforestation is relatively simple and cost-effective to implement and maintain. Reforested mangroves can reduce erosion with no adverse impact on nearby areas while creating a coastal equilibrium and enriching the local ecosystem with new habitats and food sources. However, it takes a long time for mangrove plants to grow- up to 5-10 years until they are able to effectively dampen sea waves. Moreover, areas suitable for mangrove reforestation are relatively limited.

Beach nourishment refers to the practice of (re)filling a beach directly with continental or offshore sand. This technique restores beaches to their original state before high waves occur. The strength of this technique is that it is consistent with the nature of land use, relatively low-cost, quick, and easy to do. Beach nourishment increases the beach area to the level where ships can dock and tourists can enjoy recreational activities. Furthermore, it enhances accessibility to the beach, promotes tourism, and does not restrict coastal development in the future. However, beach nourishment can only be a temporary measure as the beach needs regular refilling (and a regular budget allocation) to maintain the designed width of the beach. In general, the interval between refilling ranges from 10-20 years, depending on local conditions. Regular monitoring of local physical conditions is needed to ensure appropriate refilling intervals. In addition, changing the properties of the sand in the original beach might impact adversely on local water quality during construction. Without preventive measures for water quality, construction might also impact on the physical condition and ecosystem of the original sand.

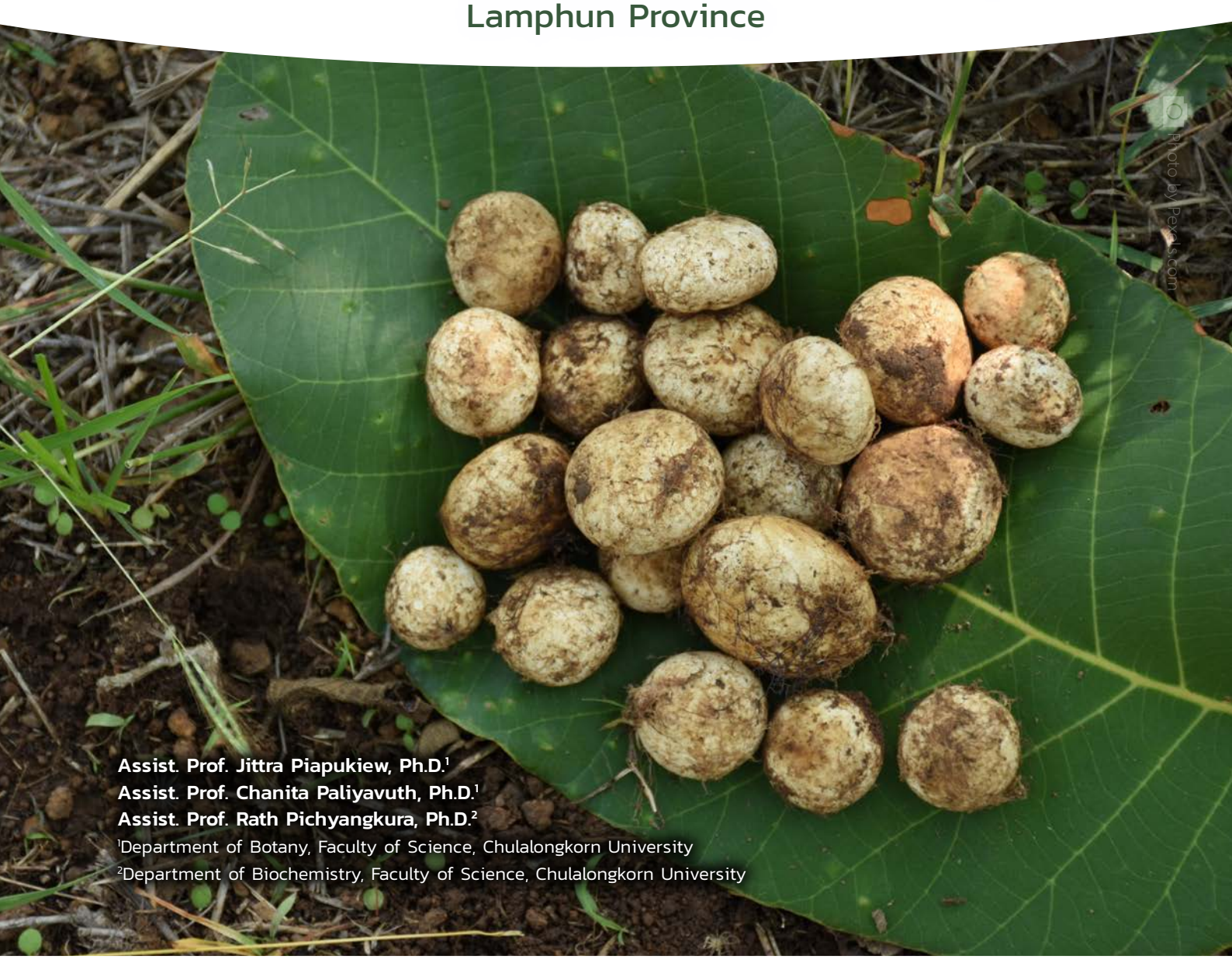
Setback zoning, coastal rehabilitation (beach nourishment/sand bypassing), mixed coastal protection structures and natural methods, natural coastal equilibrium through coastal or mangrove reforestation, and sand nourishment have been implemented in many areas. However, setback zoning has yet to be used for nature conservation, primarily because relevant agencies prefer to avoid complications associated with negotiations with private owners of coastal land and properties. Reform of land use planning regulations would be needed to facilitate its effective adoption, as demonstrated by its success in many other countries in maintaining natural coastal equilibrium. For Thailand, setback zoning can start only when coastal area development plans for tourism and industrial use are already in place. Hard structures such as revetment and other similar measures, will not achieve the goals of conserving the beauty of natural beaches and preventing coastal erosion. Ultimately, the adverse consequences are currently more challenging in the long run.



References

Department of Marine and Coastal Resources. (2018). The Guideline for Planning or Projects to Prevent and Solve Coastal Erosion.

Integrative Project of Using of *Astraeus odoratus* to Restore Forests and Reduce PM2.5 Caused by Forest Floor Burning in the Area of Mae Ping National Park Boundary, Lamphun Province



Assist. Prof. Jittra Piapukiew, Ph.D.[1]
Assist. Prof. Chanita Paliyavuth, Ph.D.[1]
Assist. Prof. Rath Pichyangkura, Ph.D.[2]
[1]Department of Botany, Faculty of Science, Chulalongkorn University
[2]Department of Biochemistry, Faculty of Science, Chulalongkorn University

The main cause of PM2.5 smog in the northern areas is forest burning by villagers foraging for forest products, especially puffball mushroom *(Astraeus odoratus),* which cannot be cultivated outside of the natural forest. The villagers mistakenly believe that forest burning stimulates puffball growth. In fact, burning destroys the fungal mycelia as well as host plants, damaging the local ecosystem as well as harming air quality. We can anticipate that continued forest burning will inevitably result in reduced species diversity and the disappearance of many valuable forest plants and animals.

Recognizing this challenge, the National Research Council of Thailand (NRCT) awarded funding to **Chula Unisearch** to implement a project *"Integration of the use of puffball mushrooms to restore forests and reduce PM2.5 caused by forest fires in the Mae Ping National Park border area, Province of Lamphun"*. The project aims to bring in knowledge, research, and innovation to address this pressing natural resource and environmental challenge and achieve long-term developmental objectives.

The project will investigate the use of puffball mycorrhiza to restore rehabilitate community forests to increase yields of puffball mushroom without burning the forest, restoring the forestfertility, for example, by re-introducing puffball mycorrhiza to indigenous forest plants, and management of leaves and grass clippings without burning. Indigenous dipterocarp species will be planted in park border areas, using puffball mycorrhiza to stimulate seedling growth and survival. This will serve as a demonstration plot to educate local villagers on reforestation, utilization of forest, and sustainable management of their community forests- and particularly to eliminate forest burning, which is root cause of many forest fires and PM2.5 emissions across the region. The project will use the demonstration plot to provide the villagers with a clear understanding of the nature of puffball mushroom mycorrhiza, the relationship of wild mushrooms with the ecosystem within deciduous forests, as well as the destructive impact of forest burning. Training programs will be organized for local villagers, farmers, teachers, students, government officials and business owners. The training will raise awareness of the interdependence of various organisms within the ecosystem and encourage sustainable forest utilization by local communities. This shift towards conservation and restoration of native forests will contribute to a reduction in the incidence and severity of forest fires.

The research scope was determined by applying our knowledge of science, technology and innovation in agriculture to develop and strengthen communities and localities. Using a spatial research approach, guidelines will be developed to enhance capacity within local communities and boosting their livelihoods, well-being and self-sufficiency in the following ways:

- Establish an understanding among local stakeholders to set development goals based on the community needs
- Establish and promote links between governmental sectors, reserchers, farmers, private sectors and the local community, for coordinating, consulting and communicating across diverse stakeholder groups to foster cooperation and drive local development
- Enable the community to access and adopt new knowledge to effect change and solve community problems themselves.
- Using the lesson learn from this project to facilitate changes in other community with similar context.

The research methodology has two main components which are research on local puffball mycorrhiza fungi and scaling up. The two parts were conducted at two separate locations. 1) restoration of the community forests with puffball mycorrhiza fungi by innoculating the fungi in the research plots. Soil properties will be analyzed and the production of puffball mushroom will be monitored.; and 2) reforestation in the park boundary using dipterocarp species inoculated with puffball mycorrhiza. Demonstration plots will be prepared for establishment of a model forest. Measurements of sapling growth and carbon assimilation, together with changes in soil fungal ecology will be performed. The scaling up process compose of setting up demonstration plot(s) in the farmer's land together with lectures and practical training.

It is hoped that the research findings will be a driving force in setting up a national policy on sustainable forest fire management, and enhance forest restoration and utilization through sustainable burning in Lamphun Province and other northern provinces suffering from PM2.5 haze caused by forest burning. The findings will also serve as a model for future forest fire management and sustainable use of forest natural resources.

Figure 1 Establishing research plots in community forests

Figure 2 Reforestation in the park boundary area with dipterocarp species inoculated with puffball mycorrhiza

Activities News

"RESPECT – Respecting Women's Equality" Video Clip

The National Research Council of Thailand (NRCT) in collaboration with **Chula Unisearch**, created a video clip as part of the ***"RESPECT – Respecting Women's Equality"*** campaign to reduce violence against women and counter domestic violence by respecting women's rights. This is part of the Thai Challenging Research Program's Thai Society with No Violence Project (2nd year) led by Associate Professor Sumonthip Chitsawang, Ph.D., Lecturer at Chulalongkorn University's Department of Sociology and Anthropology, Faculty of Political Science, as the project's Principal Investigator. Follow and watch the video clip at https://youtu.be/gJFK-0VUfUY.

Memorandum of Understanding: Harnessing Blockchain for Test Score Validation

Chulalongkorn University Academic Testing Center and Digit Soul Co., Ltd. held a signing ceremony for a Memorandum of Understanding (MOU) under the project ***"Development of test results and verification of academic test scores using blockchain technology"***. **Chula Unisearch** serves as a central agency to coordinate collaboration between the parties. Assistant Professor Surapong Sirikulvadhana, Managing Director of Chulalongkorn University Academic Testing Center and Mr. Thanapon Iamsakul, Chief Executive Officer of Digit Soul Co., Ltd. signed the MOU on Tuesday 11 October 2022, at Meeting Room 201, Research Building at Chulalongkorn University. In this occasion, Associate Professor Chairat Wiwatwarrapan, Deputy Director of Chula Unisearch, presided over the signing ceremony.

This project was created to improve Chulalongkorn University's English Proficiency Test, or CU-TEP. By introducing this trusted technology, only a blockchain-certified QR code can be used for verification, helping to prevent forgery of academic documents. Embracing this innovative approach will help position Chulalongkorn University as a leader in technological advancement in Asia, and contribute towards a more equal world.

Academic Seminar: "The Violent Crime Crisis in Thai Society... Prevention and Remediation"

Chulalongkorn University's Faculty of Political Science program in Criminology and Criminal Justice, in collaboration with **Chula Unisearch**, hosted an academic seminar on ***"The Violent Crime Crisis in Thai society... Prevention and Remediation"*** on a variety of issues under the Thai Challenging Research Program: Thai Society with No Violence Project (2nd year), funded by the National Research Council of Thailand (NRCT). The seminar program, aiming to highlight the need for prevention and resolution of Thailand's violent crime crisis, was held on Saturday 22 October 2022, in Room 608, Kasem Udhayanin (Political Science 60 years) Building.

2022 Annual Personnel Seminar

On 6-8 March 2022, **Chula Unisearch** held a personnel seminar on the topic ***"Guidelines for Academic Service of the University".*** The event, held in Surat Thani Province, aimed to raise awareness among university personnel of the institutional policies and guidelines for staff serving at the center of academic service development and research. This initiative supports Chulalongkorn University's academic service guidelines as well as the university's expanded mission and aims for further advancement by focusing on the University's strengths and improving operational efficiency. The event included a field trip to Ang Thong National Park to learn about nature and environmental conservation including the Samui people's way of life at Ban Maprao. Furthermore, team building activities have been jointly organized in order to strengthen group unity and exchange knowledge through creative joint activities which will be beneficial to **Chula Unisearch**'s future operations.





Study Visits by Three Universities

Supichai Tangjaitrong, Ph.D., Managing Director of Chula Unisearch, recently welcomed senior administrators and staff from Prince of Songkla University, Trang Campus; NIDA Consulting Center, National Institute of Development Administration (NIDA); and the Institute for Technology and Innovation Management, Mahidol University, on the occasion of a study visit and knowledge exchange on management and organizational development methods and the operation of **Chula Unisearch**. Focusing particularly on information systems, finance, and supplies, the knowledge exchange will be further leveraged to develop guidelines, raise standards and enhance efficiency in delivering academic services at each university.




Happy Retirement

On Friday 30 September 2022, **Chula Unisearch** hosted a **"Happy Retirement"** event for three officers; Ms. Nalinee Bunyaroj, Project Management Manager, Ms. Warin Wongnoo, Project Administrator, and Mr. Wiphak Khongton, the driver, on the occasion of their retirement. We wish them all a long and healthy retirement!

UNISEARCH JOURNAL