

Thai Health

2022



Institute for Population and Social Research (IPRS)
Mahidol University
Thai Health Promotion Foundation

THE THAI FAMILY & COVID-19



- 12 Indicators: Impact of COVID-19 on the Health of the Thai Population
- 10 Outstanding Health Situations
- 4 Outstanding Accomplishments for Health



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Thai Health 2022





Preface

This 2022 volume of the annual Report of the Thai Health featuring the special topic of “Impact of COVID-19 on the Thai Family.” This report examines the impact of the Thai COVID-19 epidemic and containment measures across 12 dimensions: 1) Epidemic spread of COVID-19 in Thailand during 2021; 2) Health behavior; 3) Physical health; 4) Mental health; 5) Access to health services; 6) Education; 7) Work life; 8) Income; 9) Housing and environment; 10) Family and community life; 11) Transportation and communication; and 12) Participation.

This report also examines 10 health milestones or noteworthy situations which also impact on Thai health, as follows: 1) COVID-19 and work from home: What is the impact?; 2) Freeing up marijuana, cannabis and kratom: Conditions and impact on the community economy; 3) Exaggerated food supplement ads: How to fix the problem?; 4) Migrant workers in the Era of COVID-19: Bridging the divide to meet the challenge; 5) Ming Dih Factory explosion: Lessons from a chemical factory disaster; 6) Smart farming and the future of agriculture in Thailand; 7) RCEP and CPTPP: Impact and concerns; 8) Politics on the streets and the way out; 9) Recurrence of flood disasters: Impact and adaptations; 10) #SAVEBangKloi and the rights of ethnic minority groups. In addition, this year’s report highlight 4 “good practices” which promote Thai health, including: 1) Thailand aims to develop genomics medicine to treat five disease groups; 2) Continuing Thai development of a COVID-19 vaccine; 3) Advocating for a tax policy on sugar-containing beverages: Global Outstanding Achievement Award 2021 for the Thai Department of Health; and 4) Thai-made anti-smoking drug: Golden Chamchuri seed.

The special topic for this year’s report is “The Thai family and COVID-19.” The chapter reviews the overall situation and the impact of the Thai COVID epidemic and containment measures across the dimensions of the society, economy, and health of the family. The chapter reviews the enormous changes and adaptations Thai families have had to make over the first two years of the epidemic. In addition, COVID has exposed inequalities in Thai society, and often made things worse in this regard, as the report highlights.

The Thai Health Report Team would like to express sincere gratitude to all persons who continue to read these annual reports and make good use of the content, either in research, planning, policy making, or advocacy. The interest and support of the readers of this report is what motivates our Team to continue to strive to make these volumes as useful and informative as possible. We encourage everyone to visit the website for this report and other relevant information at the following: www.thaihealthreport.com.

Thai Health Report Team



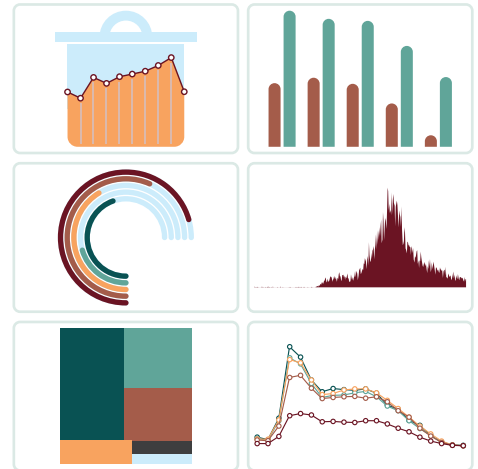
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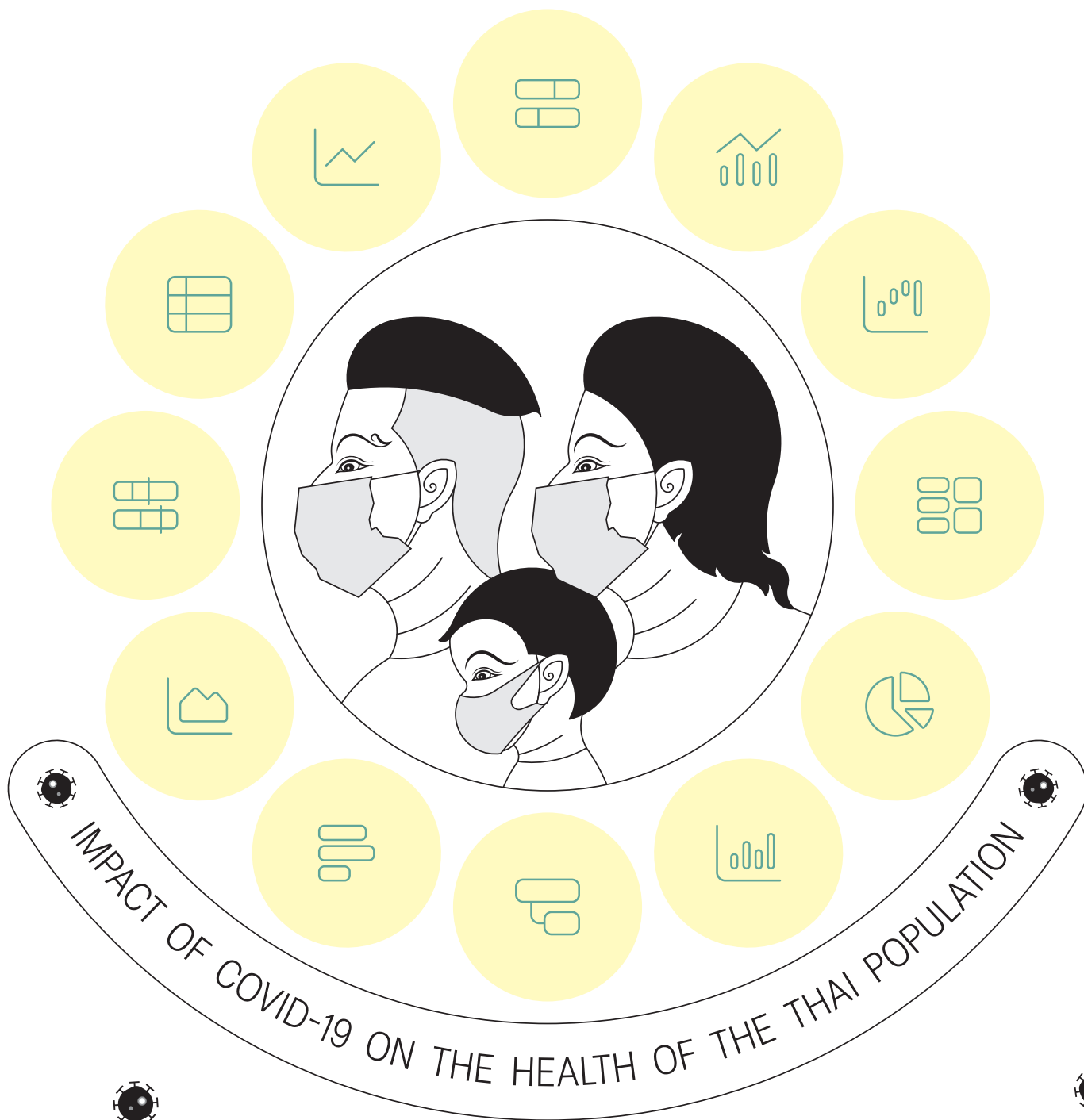
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12 Indicators





12 Indicators

“Impact of COVID-19 on the Health of the Thai Population”



Image: unsplash.com/photos/zDYzS4YrVD4

“ The COVID-19 pandemic has had a pronounced impact—both direct and indirect—on the lives of Thai people in almost every aspect, whether it is health behavior, education, work life, travel, and even family relationships. These harsh impacts affect the quality of life for Thais, both in the short- and long-term. ”

The 2022 Thai Health Report presents changes in health indicators in the wake of the COVID-19 pandemic. The Working Group has applied the Human Achievement Index (HAI) concept to present such data in eight sub-indexes, namely health, education, employment, income, housing and living environment, family and neighborhood life, transportation and communication, and participation. The conceptual framework for this analysis reflects the overall well-being and the quality of life of the Thai people across various dimensions, and as affected by COVID-19.

Section 1 presents the situation of the COVID-19 outbreak in Thailand in 2021, which was the year in which there were 2.2 million infections and more than 20,000 deaths from COVID-19. August 2021 was the month with the highest number of new cases from the Delta Variant, causing extreme stress on the Thai health care system. However, 2021 was also the year that Thai people began to get vaccinated, and that helped alleviate the severity of illness from COVID-19 and slow down the spread of the virus.

Sections 2–5 present data on the impact of COVID-19 on health, divided into health behavior, physical health, mental health, and access to health services. **Section 2** is a survey of health behavior of Thais directly affected by the COVID-19 pandemic. It was found that, in general, Thais experienced significantly reduced physical activity, especially children and youth who were required to attend school online. At the same time, it appears that the reduced social gatherings during 2021 reduced the consumption of alcohol and cigarettes.

Section 3 focuses on physical health impacts of COVID. In 2021, there were more than 20,000 deaths attributed to the virus. However, people with non-COVID illnesses also suffered due to the pandemic and response. Untimely treatment has led to “excess deaths” that could be prevented if the COVID crisis did not exist. In this way, COVID killed many more Thais than just those who caught the virus.

Section 4 reflects on the adverse impact of COVID-19 on mental health. It can be asserted that Thais across all walks of life and age groups experienced increased stress during the pandemic. The groups that might be most vulnerable to adverse mental health impacts are the children and youth who were deprived of playmates and confined to the home, as well as the working-age population who were suddenly laid off from their jobs or had reduced income or lost their business. One third of the working age population suffered from high stress.

Section 5 examines access to health services. People with chronic, debilitating disease or condition, older people with low incomes, mothers, and vulnerable children experienced a decrease in use of essential health care services as a result of COVID-19. The lack of needed care could have longer-term impacts for the health of these disadvantaged groups of the population.

Section 6 reflects on the impact of COVID-19 on education, especially the nationwide shift from classroom to online teaching. Overall, it was found that three in five households with school-age children faced problems related to online learning. Adverse consequences of compulsory home schooling are learning loss, school drop-outs, and missed learning opportunities. Children from the lower-income families were hardest hit by the closure of schools, and this could lead to more inequality in the future.

COVID-19 has had a heavy impact on the economy of Thai families. **Section 7** presents data on working life and points out that the number of unemployed Thais doubled after the advent of COVID-19, especially those in the services and trade sectors. Those findings are also reflected in income, which is discussed in **Section 8**. The data show that Thai per capita income was expected to decline by 7.4% compared to the pre-COVID-19 period. In addition, Thai households are in worsening debt, and the proportion of the poor has increased accordingly.

Section 9 focuses on housing and the environment. The slowdown in economic activity may have had a positive effect on the environment due to reduced carbon dioxide emissions and reduced solid waste. However, there has been an increase in plastic waste per capita and inefficient disposal of infectious and toxic waste.



Image: unsplash.com/photos/Yxt67gmhZaw

Section 10 discusses the changes in family and community life that are attributable to COVID-19. The stress on households and other factors have contributed to increased domestic violence. At the same time, the need to work together to fight a common foe brought out the strength of the community in alleviating the burden, say, on the public health system. Many communities organized isolation centers to help isolate and treat mild cases of COVID.

Section 11 discusses the field of transportation and communication in the COVID era. It was found that road accidents declined significantly during the COVID outbreak. Adolescents and youths remain a high-risk group. and The pandemic also aggravated the increased use of internet of the Thai people.

The last section for this year's report is public participation in the new normal of COVID. The pandemic has forced people to adapt and communicate with others in new ways. Digital communication will become an increasingly important channel for people to participate in politics and the affairs of society in the years and decades ahead. In addition, Thailand has a strong system of Village Health Volunteers (VHVs) and civil society organizations that have made it possible to help care for and rehabilitate Thai families throughout the country.

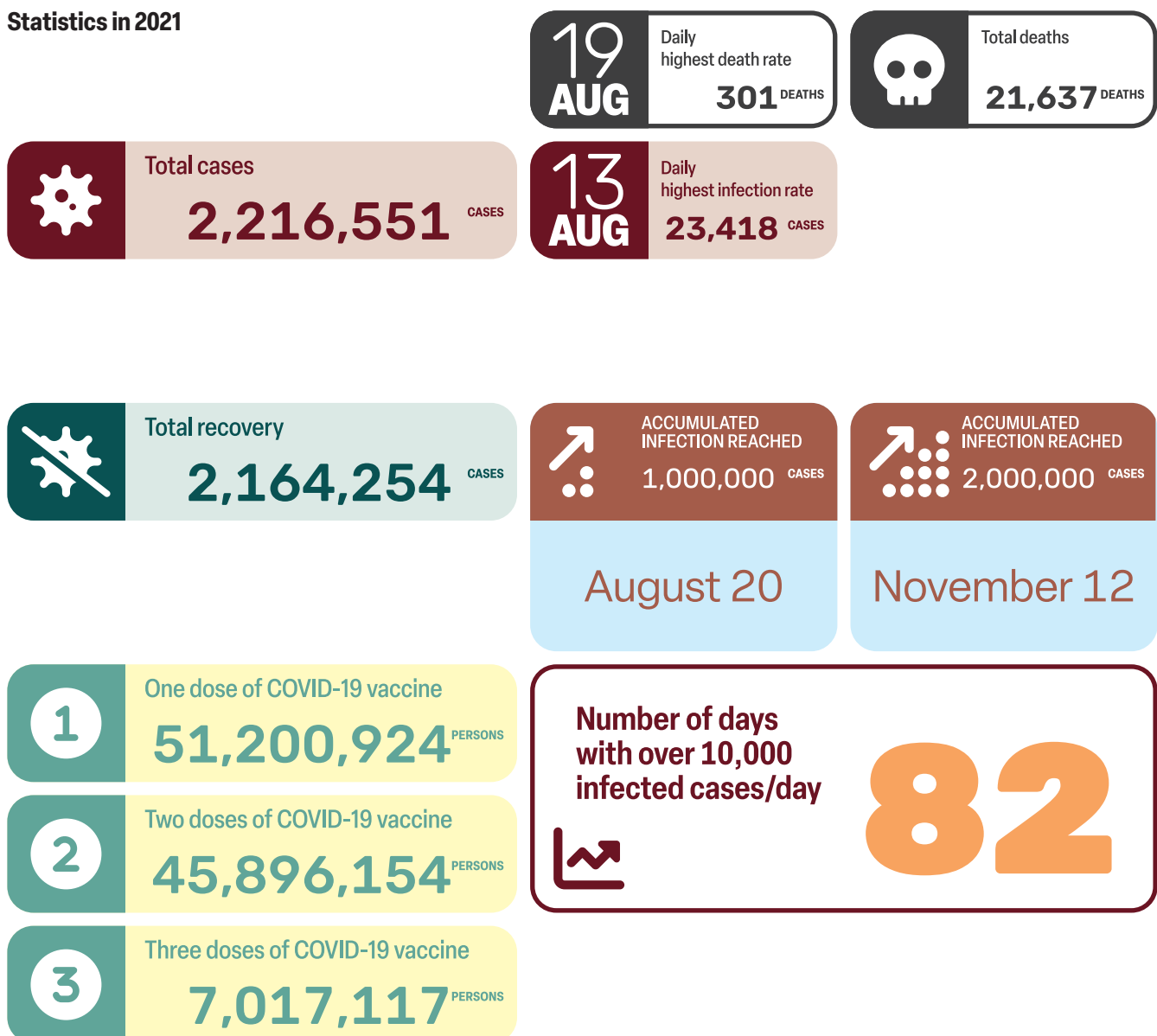
The Working Group sincerely hopes that this review of key health indicators in 2021 will help readers reflect on the impact of COVID-19, and never take good health or freedom from pandemic for granted.

1

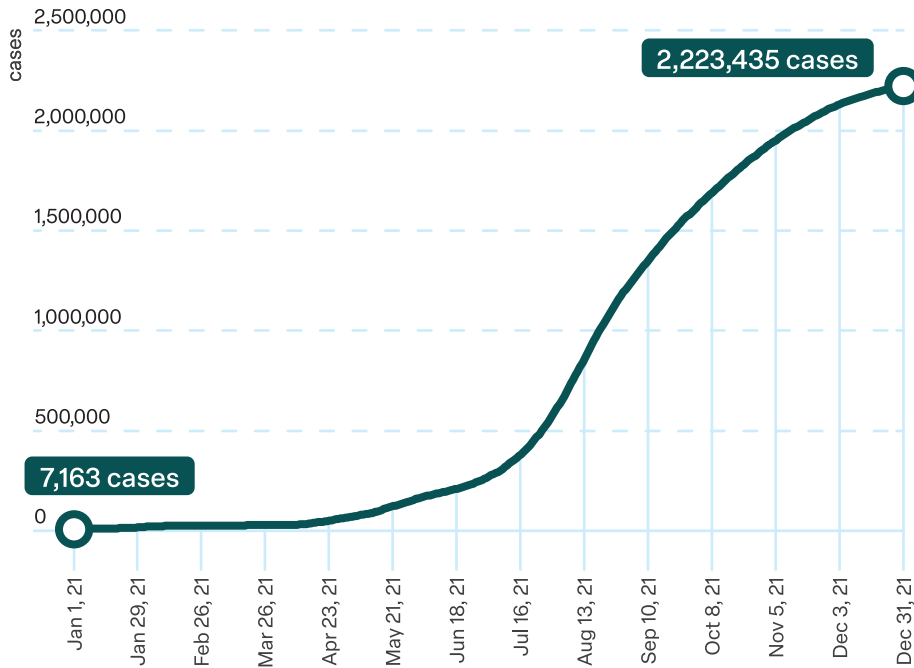
COVID-19 Outbreak in Thailand During 2021

From the first reported case of COVID-19 in Thailand (January 2020) to December 31, 2020, a total of 6,884 confirmed cases of infection were reported. By contrast, in 2021, COVID-19 had infected more than 2.2 million Thais, leading to over 20,000 COVID deaths.

Statistics in 2021



Total COVID cases in 2021

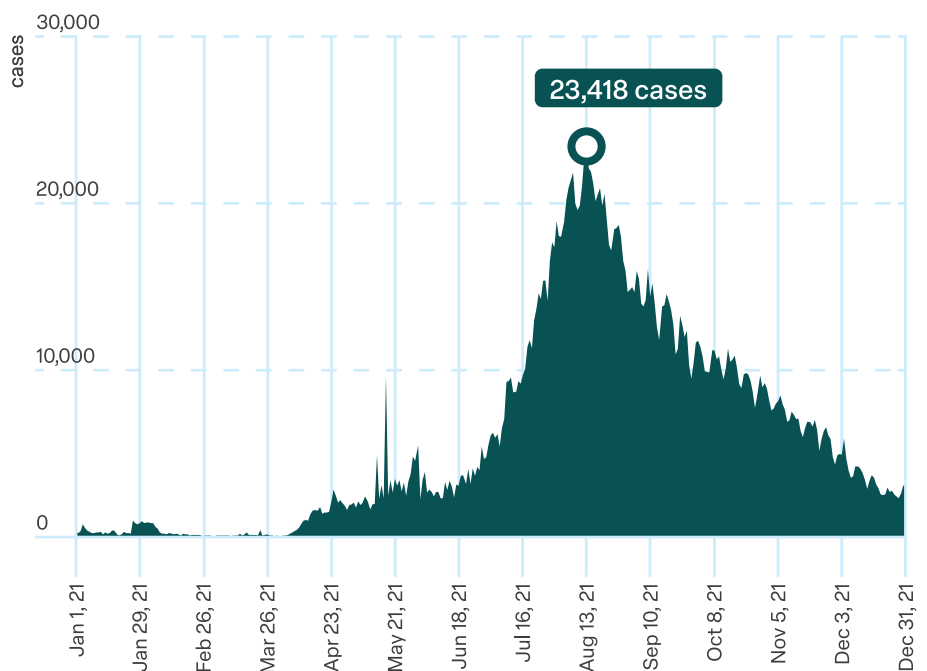


Source: Total Coronavirus Cases in Thailand 2021, Worldometer

“ In 2021, the series of waves of COVID outbreak posed a considerable challenge for the country’s public health system and caused country-wide stress for the Thai people. At the same time, 2021 was when Thailand started to roll out vaccination, shedding hope in controlling the outbreak leading to the new normal lifestyle for years to come. ”

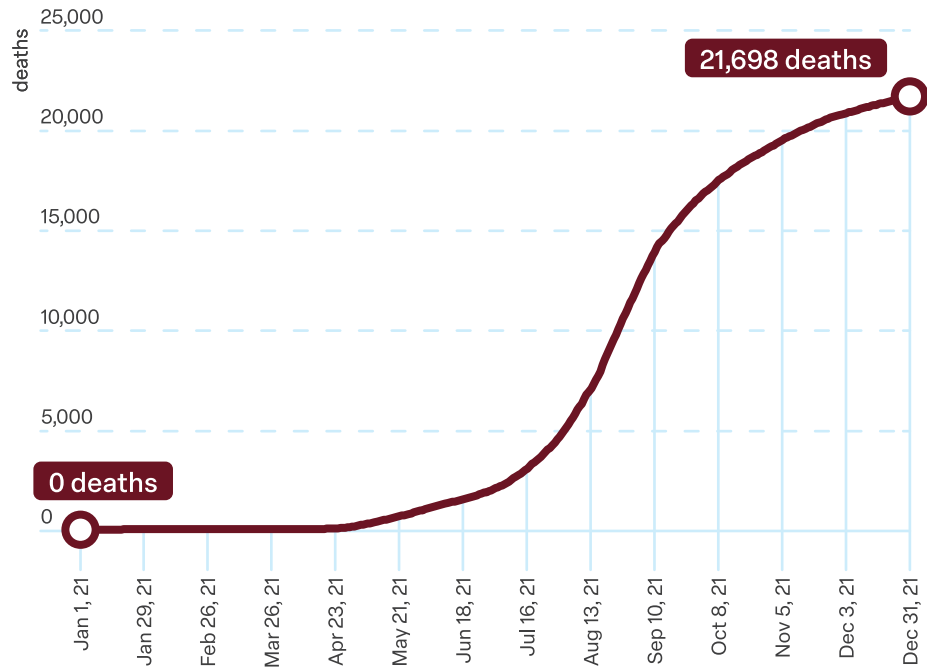
Daily new cases

In the first quarter of 2021, the level of COVID-19 outbreak remained limited. However, in April, there was a major cluster of transmission (from Alpha Variant) traced to night-time entertainment venues in the Thonglor and Ekkamai sections of Bangkok. For the first time in Thailand, daily infections exceeded 1,000 cases. During the same time, there was news about the spread of the Delta variant overseas.



Source: Daily New Cases in Thailand 2021, Worldometer

Total coronavirus deaths



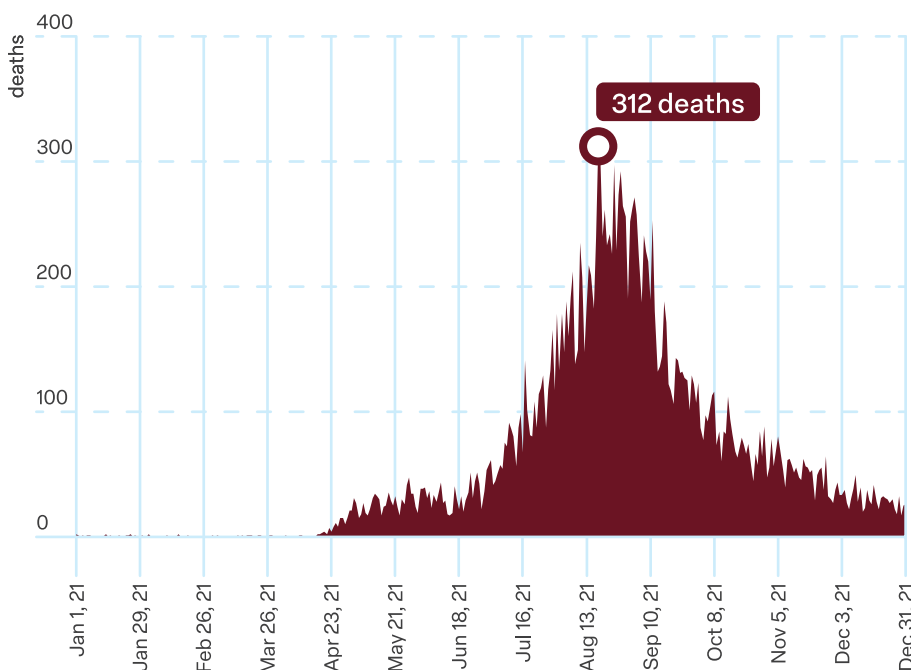
Source: Total Coronavirus Deaths in Thailand 2021, Worldometer

The third quarter of 2021 was considered the most challenging time for Thailand in its attempt to control the pandemic since, by that time, the highly infectious Delta variant of COVID had become the dominant strain in the country. In August 2021, the new daily cases averaged 19,595 with an average of 217 deaths per day.

During that time, Thailand started constructing field hospitals in anticipation of overflow of cases from the hospitals. The demands for hospital care had increased to 50,000 cases per day, and with over 150,000 active cases in field hospitals each day.

By the final quarter of 2021, COVID incidence began to plateau, and by mid-October, the daily caseload of new infections had fallen back to below 10,000 a day.

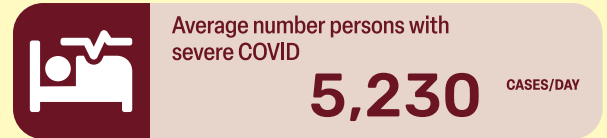
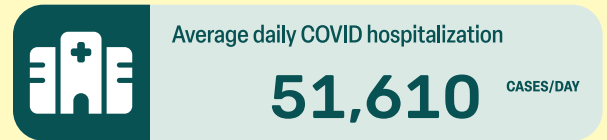
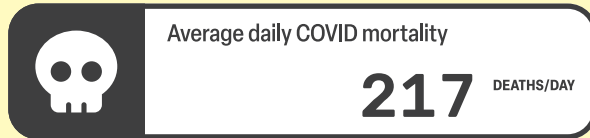
Daily new deaths



Source: Daily New Deaths in Thailand 2021, Worldometer

Thailand launched a pilot vaccine trial in February 2021 and started a nationwide vaccination campaign on June 7, 2021. However, it was a logistical challenge to roll the program out nationwide, and in an atmosphere of public uncertainty and some opposition to vaccines. Nevertheless, by the end of 2021, at least 51 million people in Thailand had received at least one dose of the COVID vaccine, and nearly 46 million had received two doses.

Statistics in August 2021

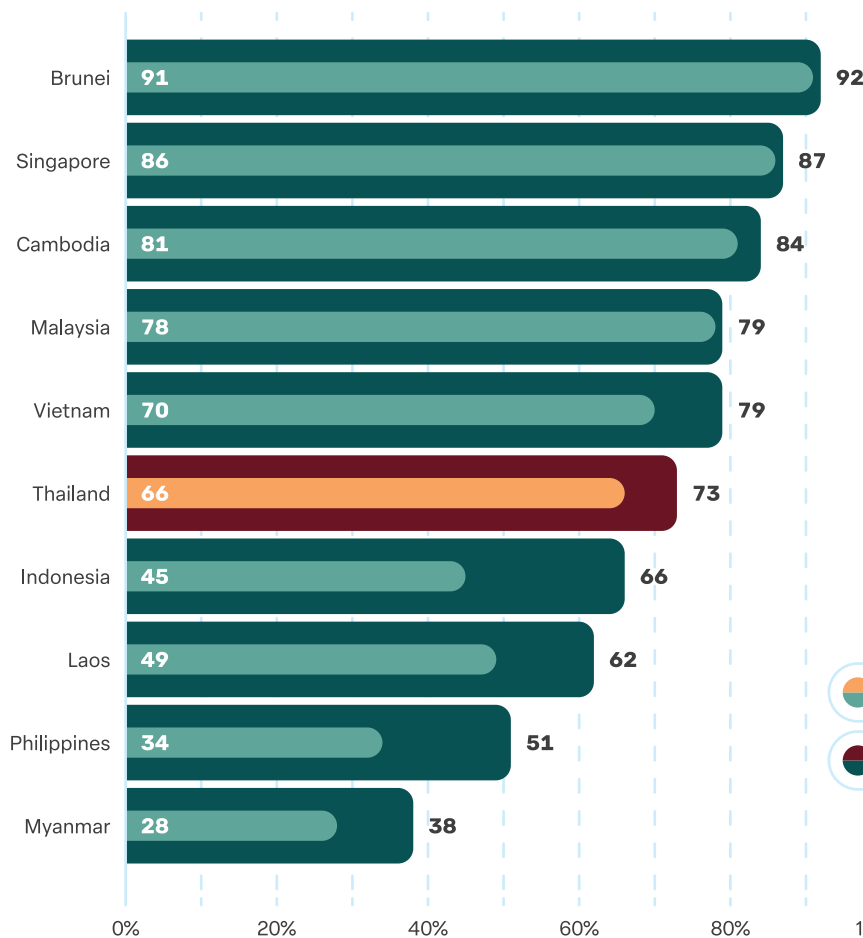


The height of the COVID outbreak in Thailand in 2021 is in



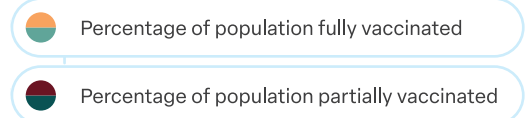
August

Percentage of vaccination in Thai people compared with ASEAN countries, as of December 31, 2021



Compared to other member countries of ASEAN, Thailand ranked sixth from ten countries in terms of being partially vaccinated at 73%. However, if considering the coverage of the population who are fully vaccinated, Thailand ranked fifth in the ASEAN region, at 66%.

By the end of 2021, the newest variant, Omicron, was quickly replacing the Delta variant around the world. There is some uneasiness about what shape the pandemic will take in 2022. Omicron is likely to be more infectious, but may cause less severe symptoms. As people receive more vaccines, the COVID situation is likely to improve in the future.



Source: Coronavirus (COVID-19) Vaccinations 2021. Our World in Data

2

Health Behavior

“ COVID-19 caused decreased physical activity among the Thai population, especially in 2020. However, the level of physical activity bounced back in 2021 in every population group. ”

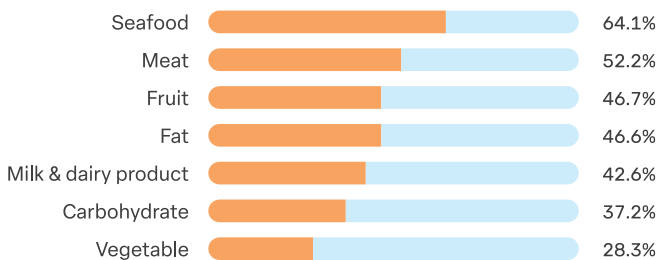
COVID-19 tended to cause Thais to adopt less health-promoting behaviors and lifestyles. At the same time, some risk behaviors tended to decrease as well.

COVID-19 affected food consumption, especially those with low income. A survey of lower-income people in Bangkok’s slums found that 37.8% had to cut food expenditures and reduce the consumption of seafood (64.1%), meat (52.2%), and fruit (46.7%).

Impacts of COVID-19 on food expense of slum residents



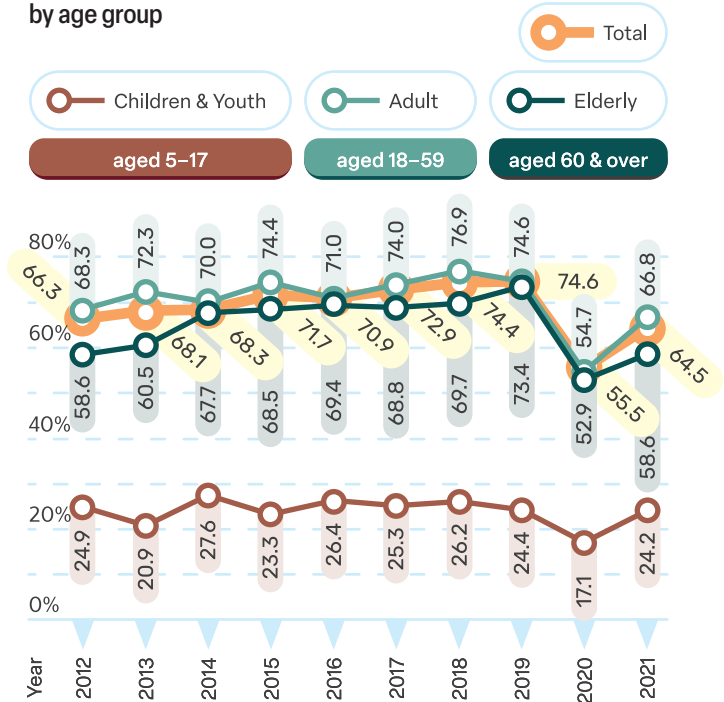
Percentage of slum residents who needed to reduce food consumption



Note: May–June 2020: Survey of a sample of 900 people from nine slum communities in Bangkok

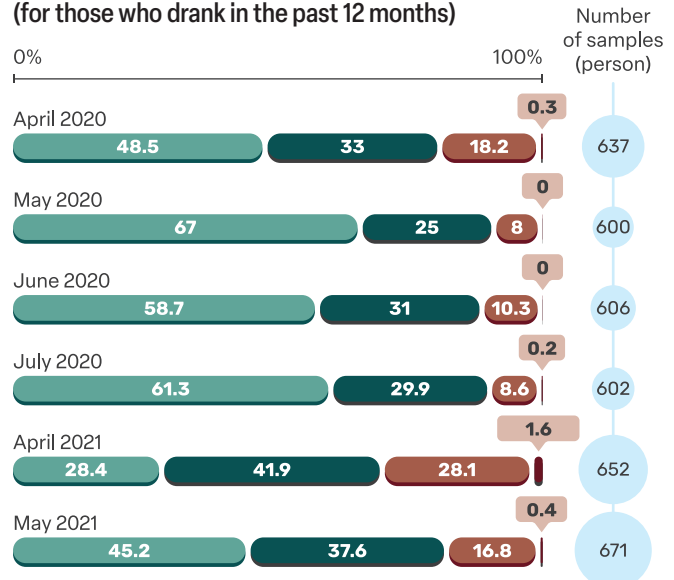
Source: Impact of the COVID-19 pandemic and social measures on food security of lower-income people in Bangkok 2020, Food and Nutrition Policy for Health Promotion Program

Percentage of adequate physical activity in 2012–2021 by age group



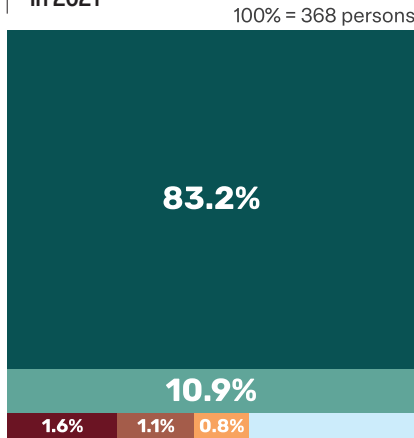
Source: Report on Thailand Adequate Physical Activity Survey, 2012–2021, Thailand Physical Activity Knowledge Development Centre

Alcohol drinking in the past 30 days, comparison before the COVID-19 crisis (for those who drank in the past 12 months)

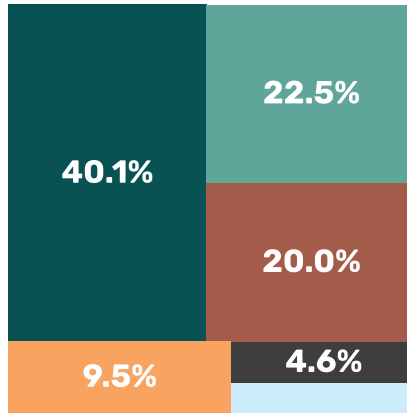


Source: Alcohol risk assessment and behavior survey during the COVID-19 pandemic: Case study of people aged 15 years or over in 15 provinces in all regions (1st–4th rounds) 2020, Research Center for Social and Business Development

Top 5 popular places for alcohol drinking in 2021



in 2017

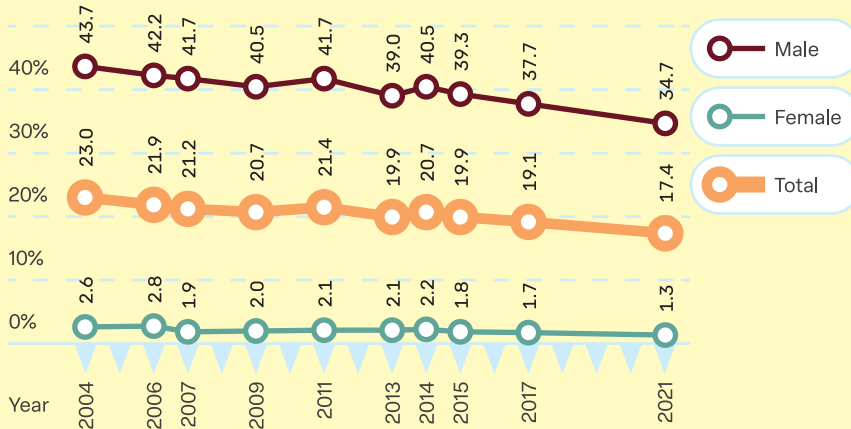


- Own home
- Someone else's home
- Restaurant
- Social function, e.g. wedding, funeral, or party
- In front of a grocery or convenience store
- Religious or cultural event

(left) **Note:** Survey in May 2021
Source: Alcohol Consumption Behavior Survey: Economic impact and health behaviors during the COVID-19 pandemic: Thais age 18 years or over in 15 provinces (2nd round) 2021, Research Center for Social and Business Development
 (right) **Source:** Cigarette Smoking and Alcoholic Drinking Behavior Survey in 2017, NSO
 (below) **Source:** The 2021 Population Health Behavior Survey, NSO

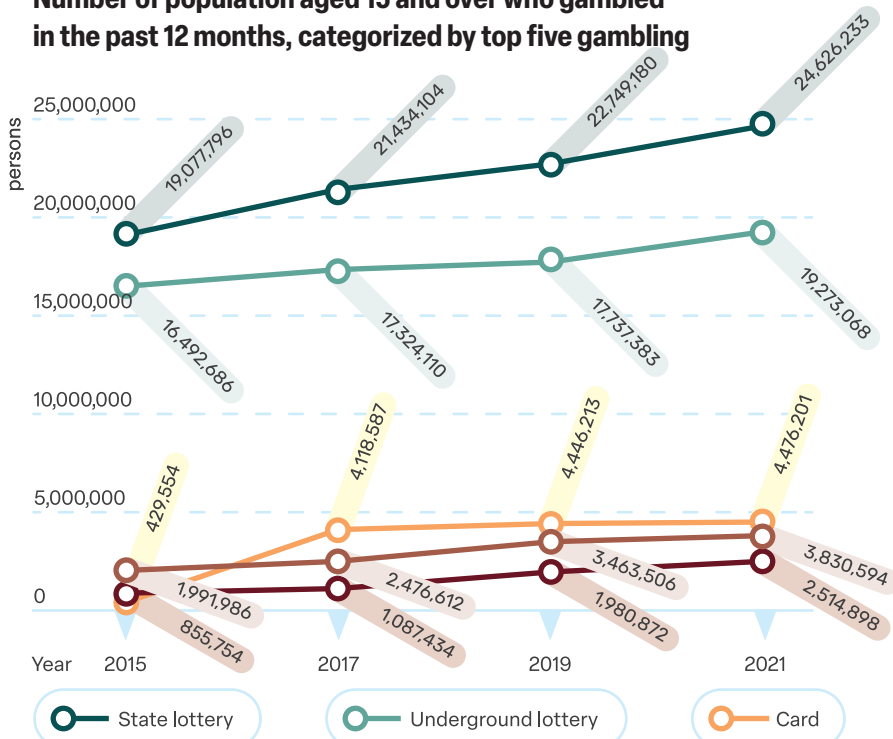
Alcohol consumption also declined during the COVID-19 pandemic. A survey on alcohol consumption revealed findings, after six rounds of survey since the pandemic. At least 80% of those who reported drinking alcohol in the past 12 months reported no or less consumption in the past 30 days compared to the pre-COVID crisis (except in the April 2021 survey that found 70% of drinkers with no or less consumption). Among those who continued to drink alcohol, the majority drank at home (83.2%).

Percentage of smokers aged 15 and over in 2004–2021 by sex



In 2021, smoking among Thais age 15 years or over declined to 17.4% from 19.1% in 2017, and COVID-19 may have played a role. Data from the smoking cessation hotline #1600 showed that more people were calling for advice based on fear of increased risk of contracting COVID-19 if they were a smoker. Plus, the social isolation and online study among youth reduced exposure to peers and peer pressure to smoke.

Number of population aged 15 and over who gambled in the past 12 months, categorized by top five gambling



By contrast, gambling behavior did not seem to change very much, as the number of buyers of state and underground lotteries continued uninterrupted.

Source: A Study of Situation, Behavior and Effects of Gambling in Thailand for the year 2015, 2017, 2019 and 2021, Research Center for Social and Business Development

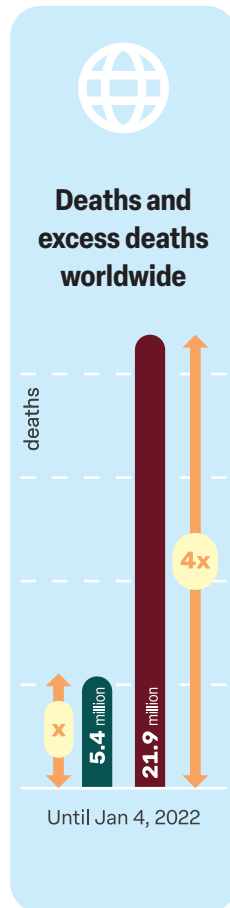
3

Physical Health

COVID-19 and the change in lifestyle are affecting Thai physical health, both directly and indirectly. While Thai deaths increased above the typical number, the incidence of other infectious diseases decreased, which was likely an indirect result of prevention behavior from COVID-19.

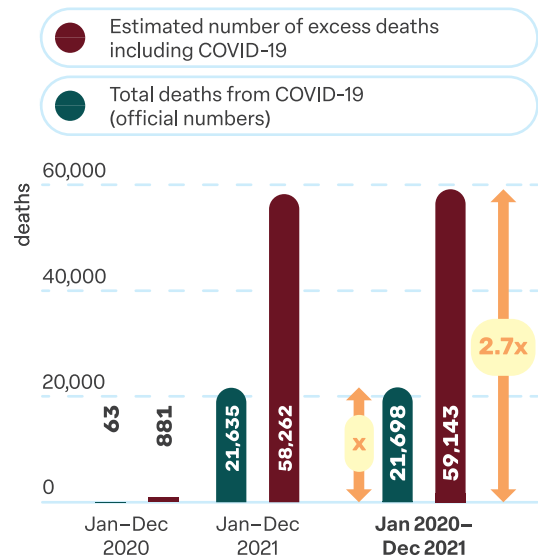
Since the sudden arrival of COVID-19 since the beginning of 2020, more than 20,000 Thais have lost their lives to this new pathogen, most of them attributable to the heavy outbreaks in 2021. The steady increase in infections and people needing hospital care strained the health care system to the breaking point, and there were people with other life-threatening illnesses that experienced inaccessibility of emergency services. If this indirect effect is taken into account, the actual mortality due to COVID is considerably higher than the official recorded COVID deaths. "Excess deaths" refer to the number of deaths that are higher than past trends would predict. That is one way to estimate the total direct and indirect effect of COVID on mortality. In the case of Thailand, the projection is that COVID is responsible for nearly 60,000 deaths since the pandemic began.

“ Thailand recorded nearly 22,000 deaths from COVID-19 up to the end of 2021, but the actual total COVID mortality could be 2.7 times higher. ”



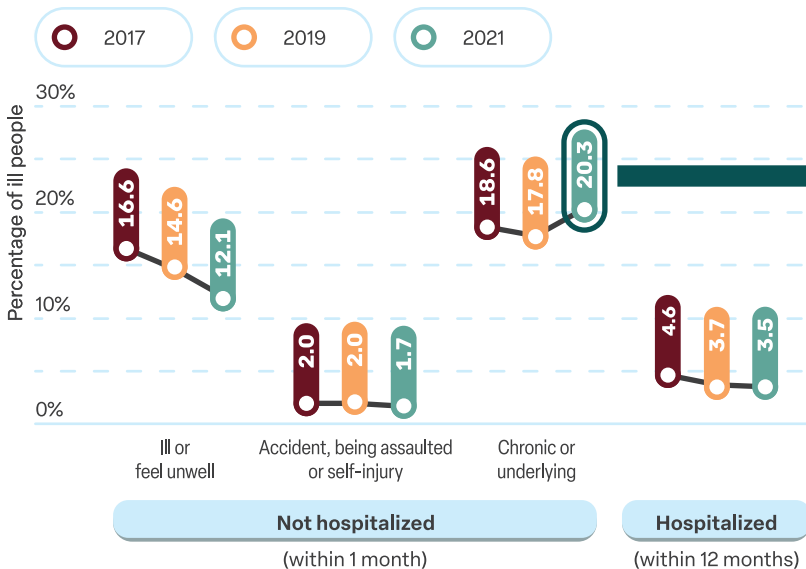
Excess mortality is a comparison between the reported and projected number of deaths. It analyzes data and mortality trends from five years ago.

Deaths and excess deaths in Thailand

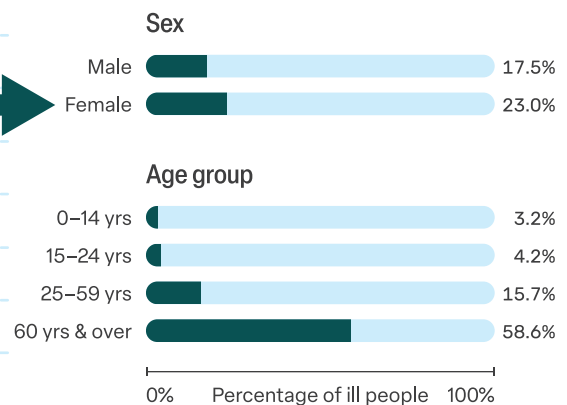


Source: Tracking COVID-19 excess deaths across countries 2021, The Economist

Percentage of illnesses in Thai people



Percentage of chronic or underlying diseases in 2021

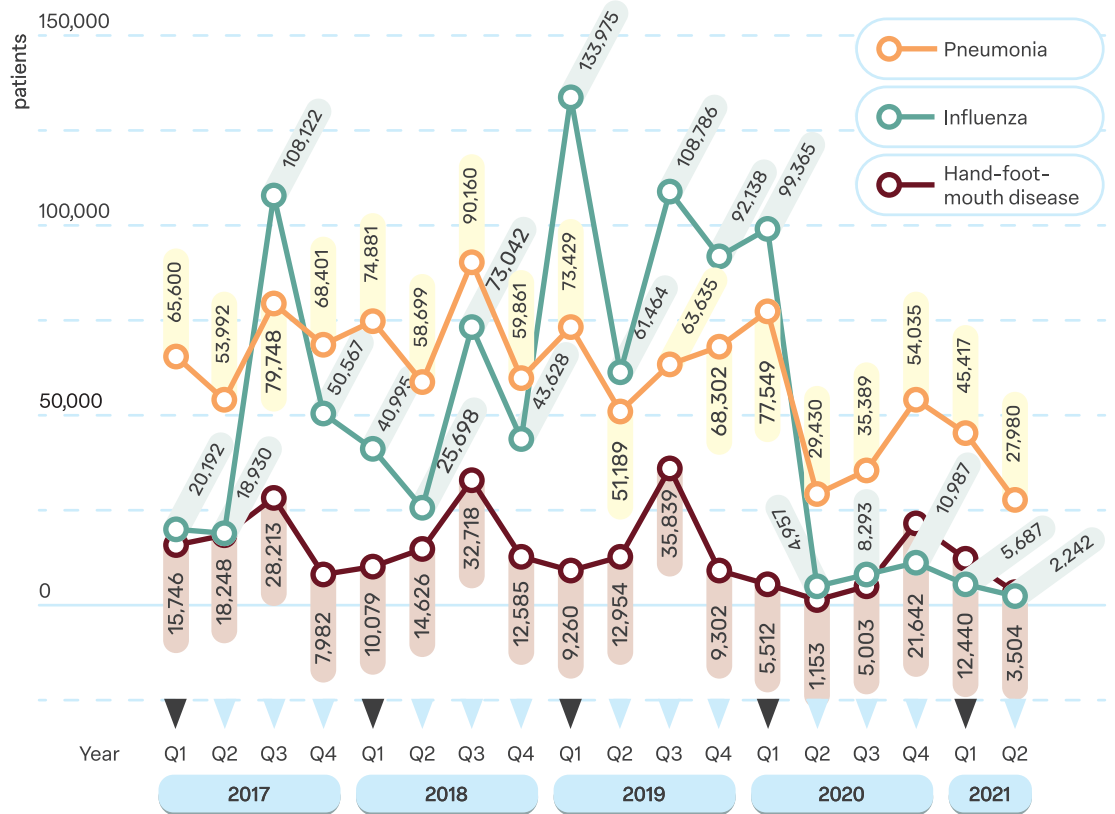


Source: Health and Welfare Survey 2017, 2019, 2021, National Statistical Office

Number of patients with pneumonia, hand-foot-mouth disease and influenza

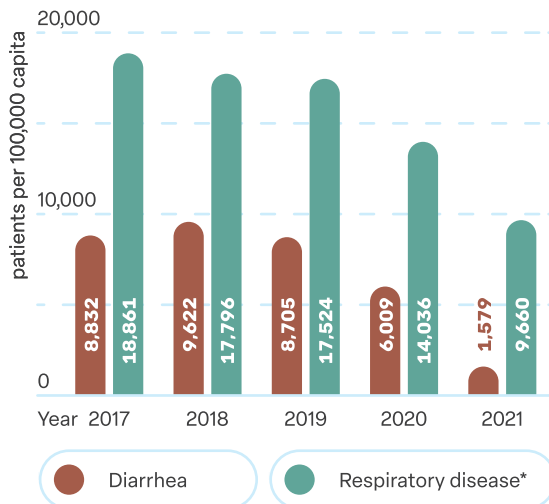
by quarter

Source: Quarterly Social Outlook 2021, NESDC



Number of patients with diarrhea and respiratory disease

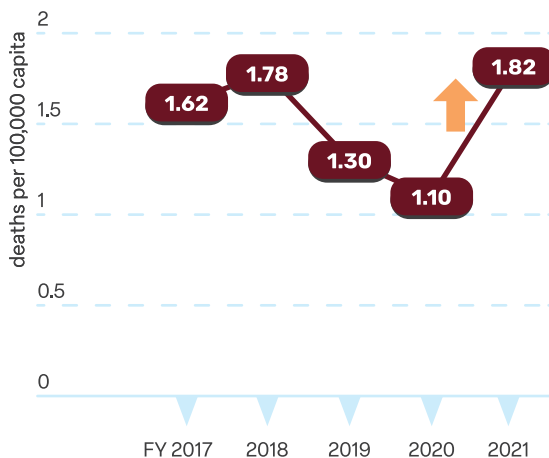
Note: *Excluding data in Bangkok
Source: Health Status 2021: Standards Reporting Group, Health Data Center Health Archives. Information and Communication Technology Center, Ministry of Public Health



On the other hand, COVID-19 may have had a positive effect on Thai health in some respects, since people adopted the COVID prevention measures. Indeed, the general trend in morbidity of all causes in 2021 continued to decline. Minor illnesses/injuries that can be treated on an out-patient basis, or even serious illnesses/injuries from accidents, assault, or self-harm that require hospitalization declined. However, the number of illnesses due to chronic diseases tended to increase in 2021, particularly among the older population age 60 years or older.

Death from drowning among children under 15 years

Source: Mortality from drowning among children under age 15 years in 2021, Health Data Center and Health Information and Communication Technology Center, Ministry of Public Health



The prevalence of communicable diseases, especially those that pass through the respiratory tract and those that can be prevented through proper hygiene and sanitation such as diarrhea, influenza, pneumonia, hand-foot-mouth disease, significantly dropped during 2020–2021. At the same time, the number of drowning deaths among youth under age 15 years increased sharply in 2021. It is unclear whether this is a result of school closures, but activities of youth should be supervised by concerned parties.

4

Mental Health

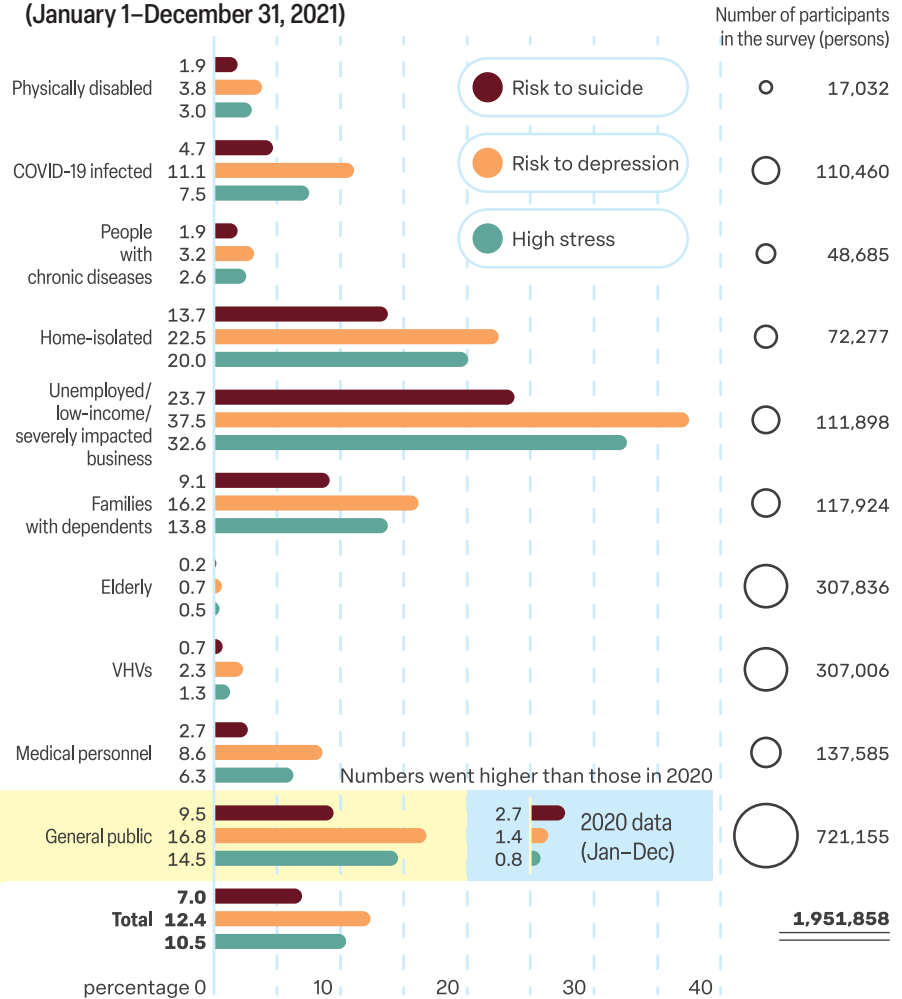
“Mental health illnesses” will be the 4th wave of health impacts of the COVID-19 pandemic. Based on the health footprint concept of the pandemic, the adverse mental health effects will be long-term, and affect a broad range of the population, particularly the vulnerable groups and people with pre-existing mental health problems.

COVID-19 adversely affects the mental health of all populations. School-age children and youth are particularly vulnerable to impacts on mental health since they have less life experiences and psychological resilience to deal with change compared to other age groups. These changes include online classes, the lack of in-person social contact with classmates and peers, the lack of free play, or even the loss of caregivers from COVID-19.

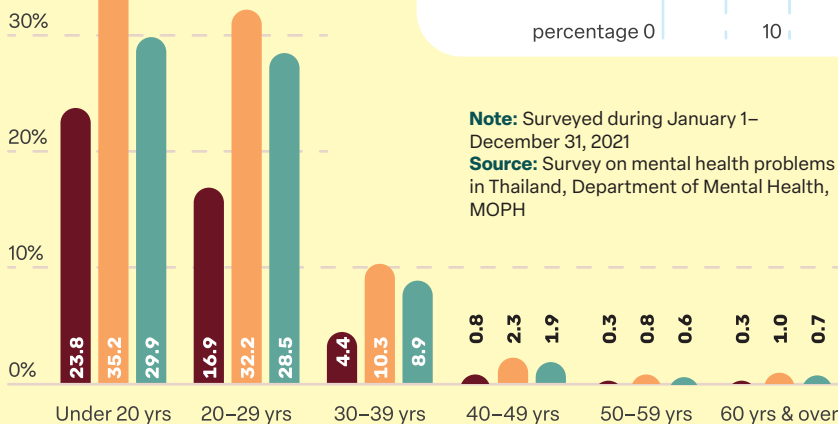
“Of the unemployed, lower-income, or business owners facing problems from COVID-19, in 2021, 1 in 3 reported high stress, and nearly 1 in 4 had thoughts of suicide.”

Survey on mental health problems in Thailand

(January 1–December 31, 2021)



General public by age group

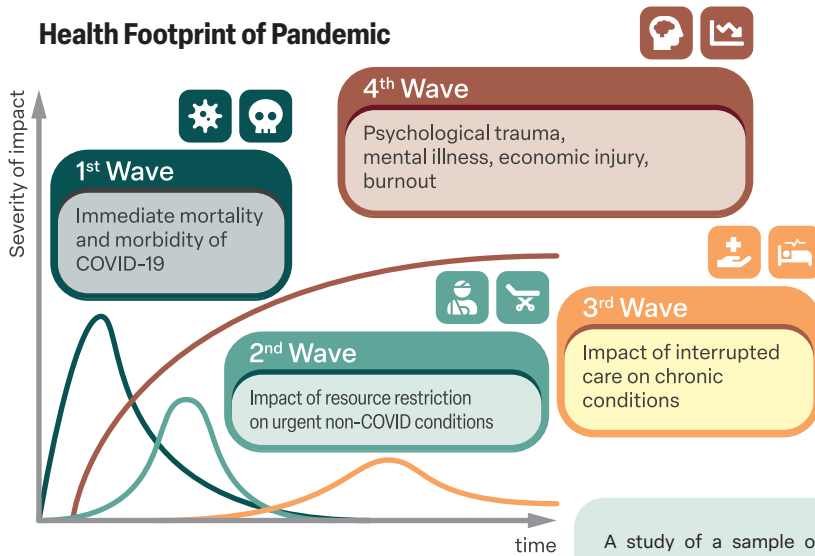


Note: Surveyed during January 1–December 31, 2021
Source: Survey on mental health problems in Thailand, Department of Mental Health, MOPH

the implementation of prevention interventions for associated risk behaviors, e.g., smoking and alcohol drinking.

People who were laid off, suffered reduced income, or even lost a business can be expected to have very high stress levels. The risk of clinical depression and suicide of this group was 2–3 times higher than the average person. Based on data from the MOPH, the number of Thais who attempted suicide and received mental health services in 2020 and 2021 was more than 24,000 cases per year.

Health Footprint of Pandemic



Source: Tseng, 2020, cited in Jenkins, E. K., et al., 2021

Over-consumption of COVID related news from various channels may be another risk factor for mental health problems. Many news presented in the media are incorrect, distorted or entirely false. Therefore, the promotion of media and information literacy skills are vital for people of all ages.

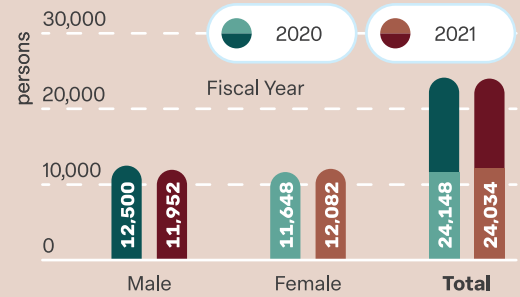
A study of a sample of 4,004 Thais found a statistically significant relationship between their exposure to information about COVID-19 and mental health problems. People who received more information (> 3 hours per day) were

- 1.35 times more likely to have depression
- 1.88 times more likely to have anxiety
- 1.52 times more likely to have insomnia

compared to people who were less exposed (< 1 hour per day).

Source: Mongkhon, P., et al, 2021.

Number of people with suicidal attempt

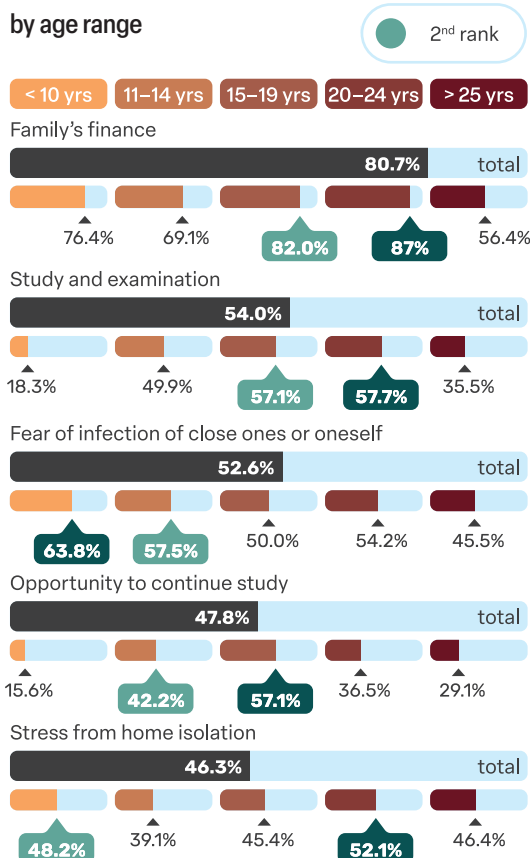


Source: Access to mental health service – number of people with suicidal attempt in 2022, Health Data Center (HDC)

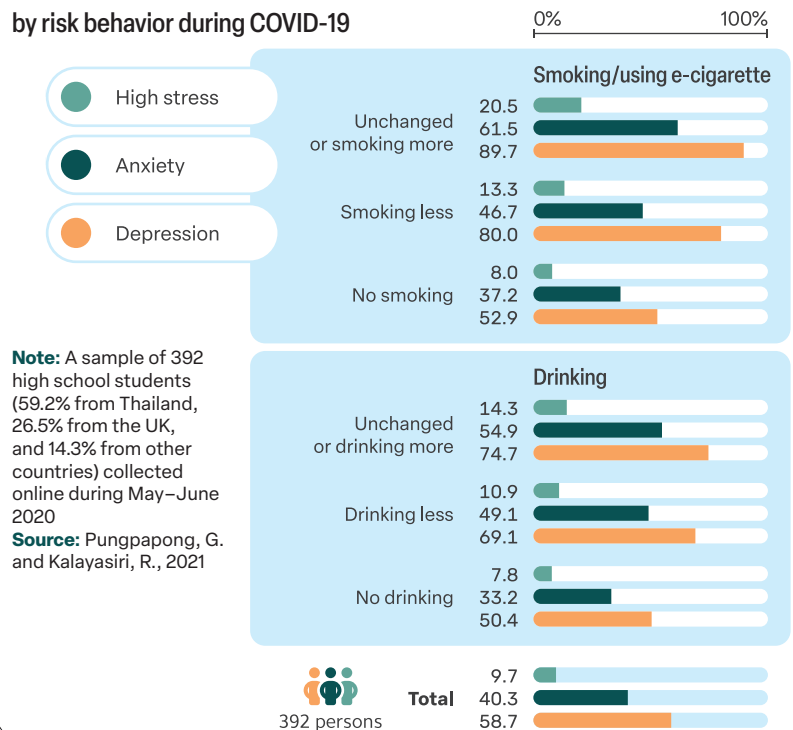
According to the Anti-Fake News Center's Report for Jan 1–Dec 31, 2021, 47.9 million news items were screened for content, of which 822 messages were subject to review, or 428 stories. Of the 244 stories that were checked, it was found that 77 stories contained fake news or disinformation, accounting for 31.6%

Source: Anti-Fake News Center's Report for January 1–December 31, 2021, Ministry of Digital Economy and Society

Anxiety in children and youth over COVID-19



Depression, anxiety and stress in high school students



Note: A sample of 392 high school students (59.2% from Thailand, 26.5% from the UK, and 14.3% from other countries) collected online during May–June 2020

Source: Pungpapong, G. and Kalayasiri, R., 2021

Note: (1) Nationwide Child and Youth Survey during March–April 2020, 6,771 people (* 334 people); (2) Dark green and light green show the age group with the highest proportion of people who are worried about each issue by top two, respectively, when compared to other age groups.

Source: Preliminary report on the impact and needs of children and youth in the COVID-19 situation 2020, United Nations

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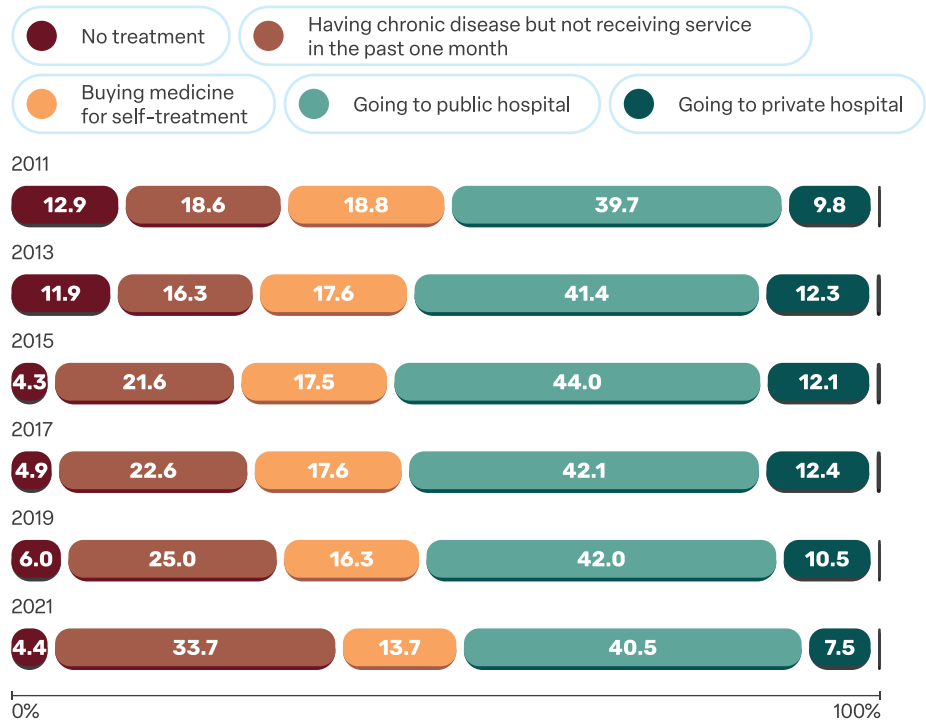
Access to Health Services

“ Patients with chronic disease but not receiving services in the past month increased from 25% in 2019 to 33.7% in 2021. ”

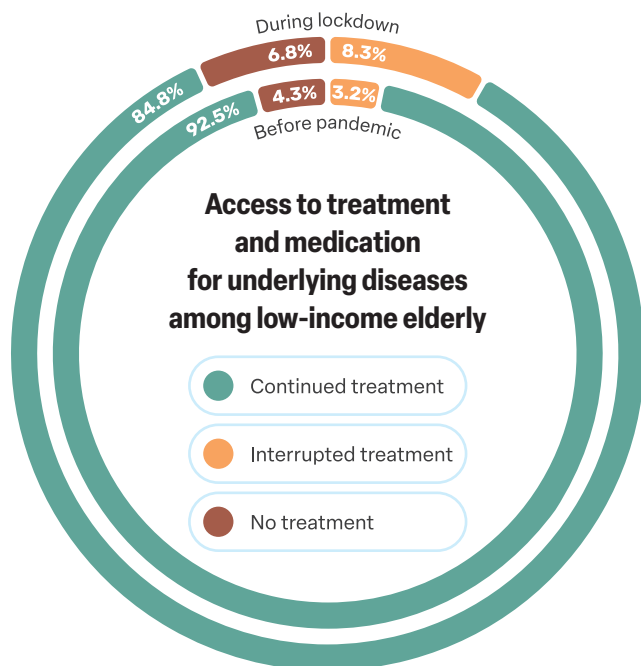
COVID-19 has reduced the use of health services in various fields, including seeking care when sick with non-COVID illness and other health promotion services.

According to the Health and Welfare Survey in 2021, Thais were slightly less likely to visit public or private hospitals or even buying medicines over-the-counter to self-treat when ill or injured. The lower use of health services may be because they wanted to avoid leaving the house to reduce their risk of contracting COVID. The group that should be monitored closely is those with chronic diseases, especially the lower income older persons. In this group, there was a nearly 8% reduction in receiving continued treatment for a chronic condition.

Treatment method for last nonhospitalized illness in the past one month before interview



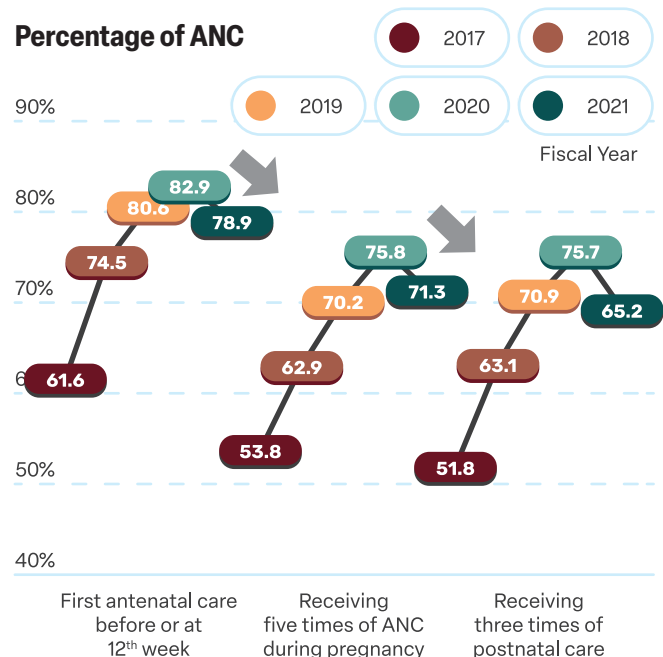
Source: Health and Welfare Survey: 2011, 2013, 2015, 2017, 2019 and 2021, NSO



Note: Data collection in October–November 2020 in three areas: Bangkok, and urban and rural areas of Nakhon Ratchasima and Chiang Mai Provinces, for a total of 808 cases

Source: Survey of well-being and needs for services and care for low-income seniors during and after the lockdown due to COVID-19 in Thailand 2021, Institute for Population and Social Research, Mahidol University

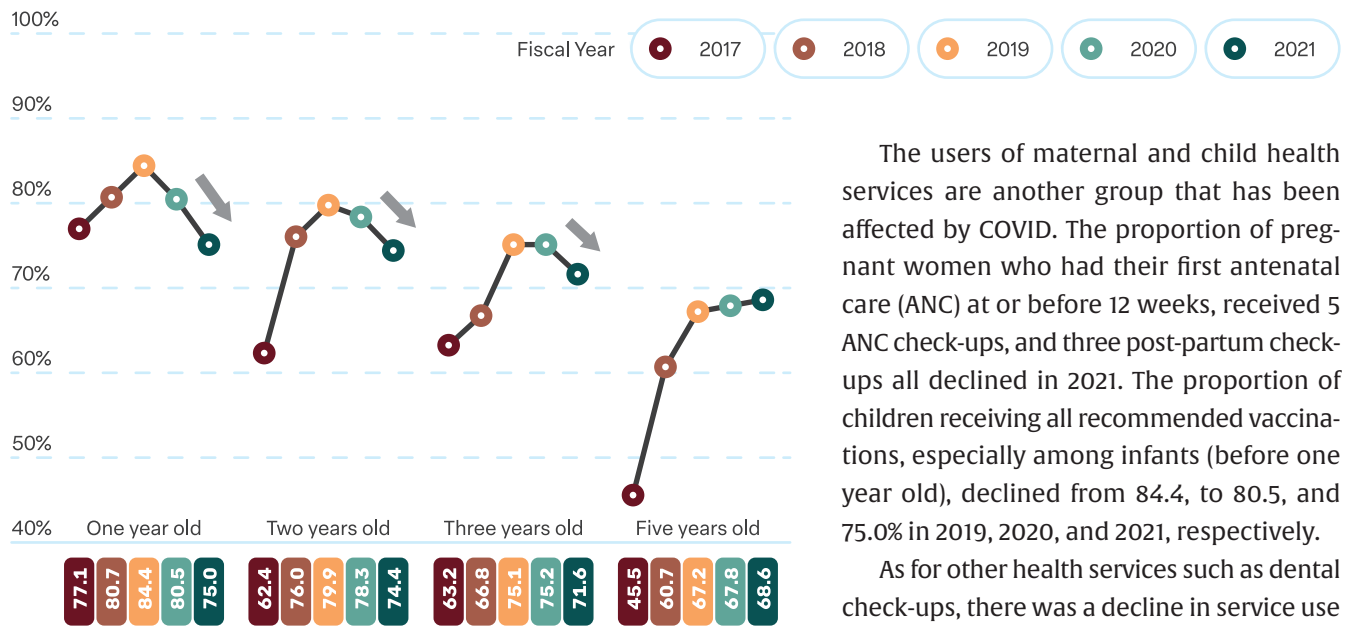
Percentage of ANC



Source: Access to services for ANC and MCH in 2021, Health Data Center, Information and Communication Technology Center, MOPH

Percentage of children aged 0–5 receiving all recommended vaccinations

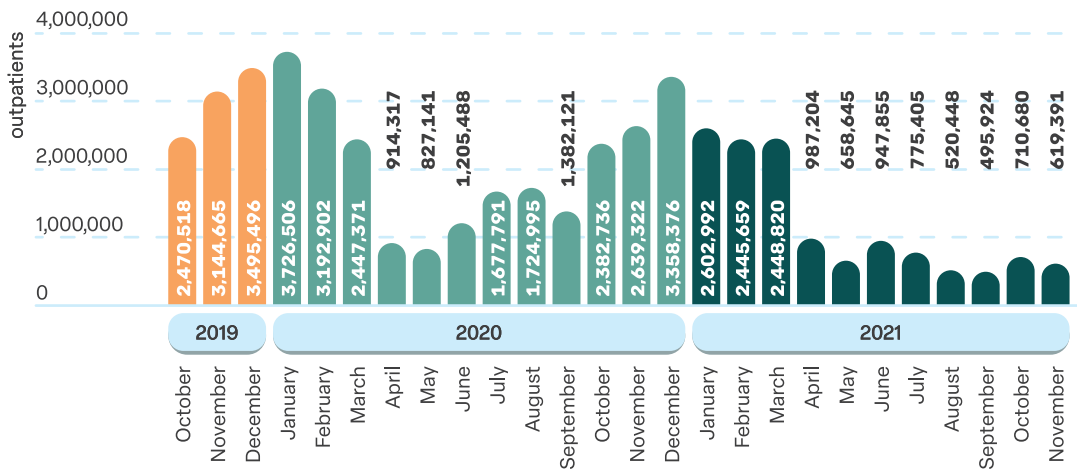
Source: Childhood vaccination coverage in 2021, Health Data Center, Information and Communication Technology Center, MOPH



The users of maternal and child health services are another group that has been affected by COVID. The proportion of pregnant women who had their first antenatal care (ANC) at or before 12 weeks, received 5 ANC check-ups, and three post-partum check-ups all declined in 2021. The proportion of children receiving all recommended vaccinations, especially among infants (before one year old), declined from 84.4, to 80.5, and 75.0% in 2019, 2020, and 2021, respectively.

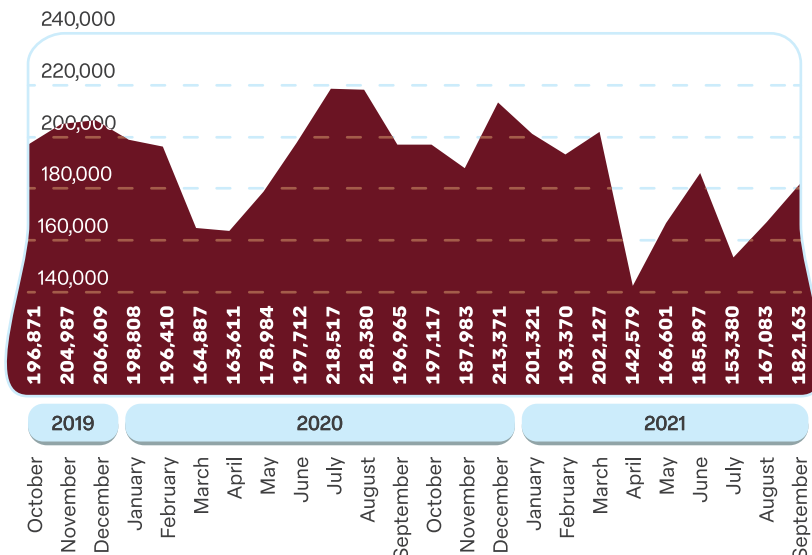
As for other health services such as dental check-ups, there was a decline in service use in April 2020 and April 2021 onwards.

Number of outpatients receiving dental service



Source: Number of outpatients receiving dental services in 2021, Health Data Center, Information and Communication Technology Center, MOPH

Number of units of blood from blood donations at National Blood Center, Thai Red Cross Society



Source: Number of units of blood from blood donations in 2021, National Blood Center, Thai Red Cross Society

The aversion to go to a medical facility also caused a reduction in voluntary blood donations. The National Blood Center of the Thai Red Cross Society reported that, in March 2020 and April 2021, blood donations were below 180,000 units per month. The Red Cross usually requires 200,000 units of blood each month to treat patients. As a result, surgery, treatment of blood-related diseases, and care for accident victims had to be postponed.

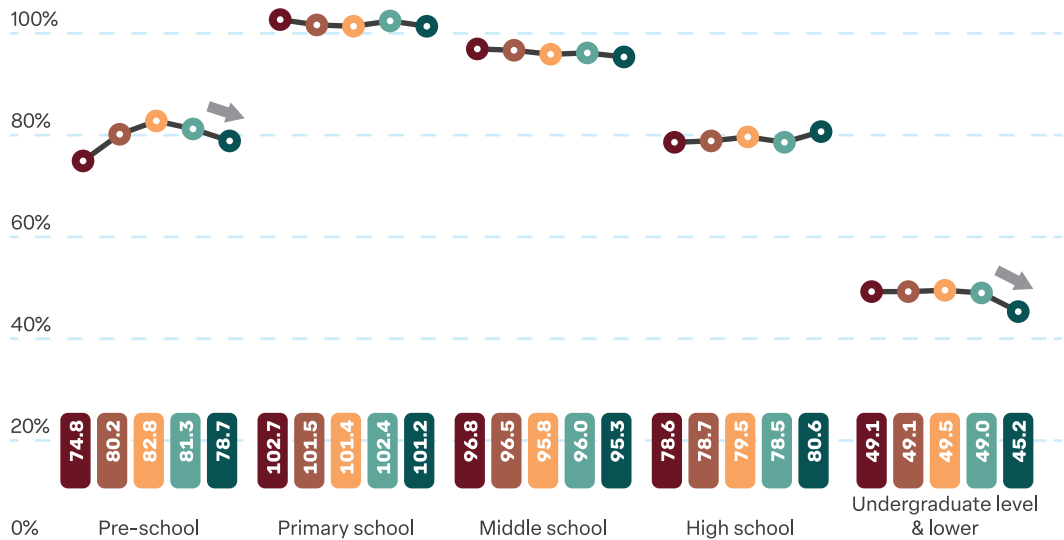
6

Education

“ 3 out of 5 households with school-age children faced problems with online schooling during COVID-19. ”

Percentage of full-time students per the school-age population

Fiscal Year
 2016
 2017
 2018
 2019
 2020



5 challenges for education during COVID-19



Managing a re-opening of the schools that is safe from COVID



Ensuring that remote learning does not worsen inequality or health of students



Accommodating differences in the learning environment and closing gaps in education



Looking after the health and well-being of students (especially the younger cohorts)



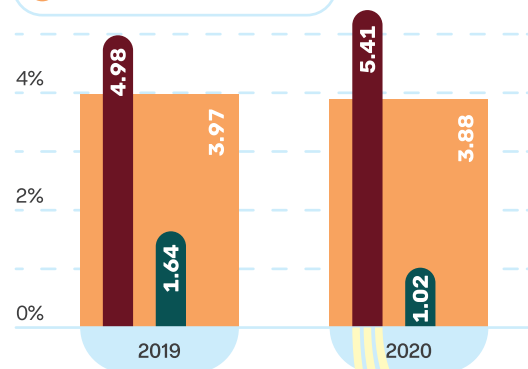
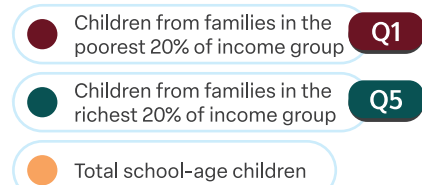
Paying adequate attention to pre-primary education

Source: UNICEF & UNESCO (2021)

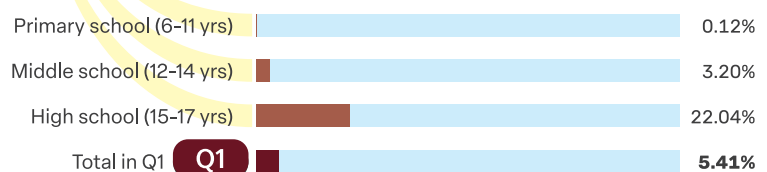
Learning loss, school drop-outs, and the absence or inaccessibility of learning opportunities suitable for the age of learners, especially vulnerable youth, is a big concern about the impact of COVID-19 on education.

Source: Education Statistics: Office of the Permanent Secretary, Ministry of Education, 2021, NESDC

Percentage of school-age children who “used to go to school but not currently enrolled”



Percentage of school-age children who “used to go to school but not currently enrolled” from families in the poorest 20% of income group (Q1), 2020



COVID-19 has adversely affected the formal education of Thai youth, from early childhood up to university level. The direct impacts are from the closure of schools, and the indirect impacts are on the socio-economic status of the student’s family. The key challenge is adapting education to the situation and maintaining the quality of learning, health, and well-being of students so that there is no increase in inequality.

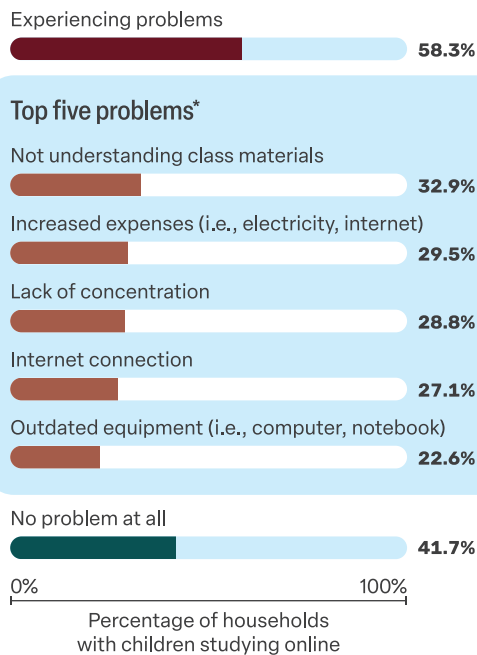
The rate of Thai school enrollment (measured by the ratio of full-time students to the school-age population) dropped for almost all grade levels in 2020, as COVID-19 swept throughout the country. The decline was especially pronounced at the pre-primary level (78.7%) and post-secondary school (45.2%), predicting a delay in accessing early childhood learning development in many groups of Thai children, and lower participation at the undergraduate level of higher education.

Note: “School age” refers to ages 6–17 years. Household quintiles are based on per capita consumption expenditure per month of households

Source: Compiled from data from the Household Socio-Economic Survey 2019 and 2020, NSO

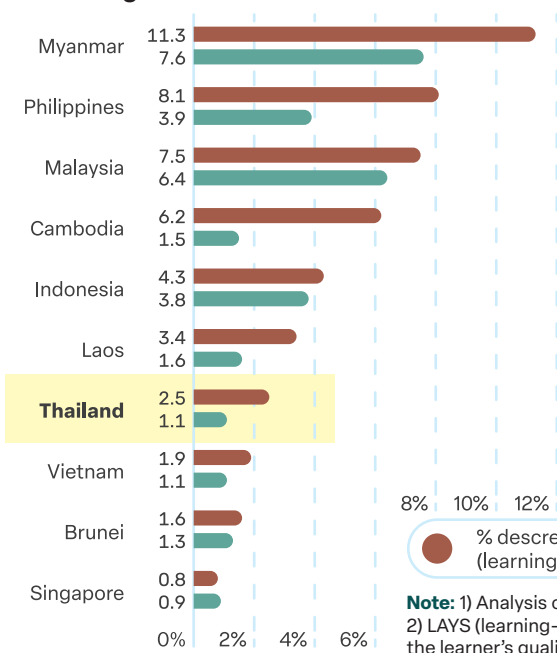
The data are less clear about the rate of permanent school drop-out, but this statistic must be tracked so that drop-out can be prevented, especially for youth from lower-income families. Data for 2020 show that

Households with children studying online



Note: 46,600 total households nationwide: Proportion of households with children studying online during COVID-19 accounted for 42.0%; * Multiple response allowed
Source: Public opinion poll on the situation of the COVID 19 Pandemic (Adaptation and Digital Accessibility) 2021, NSO

Impact from school closure during COVID-19



8% 10% 12%

● % decrease in LAYS (learning loss) ● % decrease in (future) annual earnings of one student (earning loss)

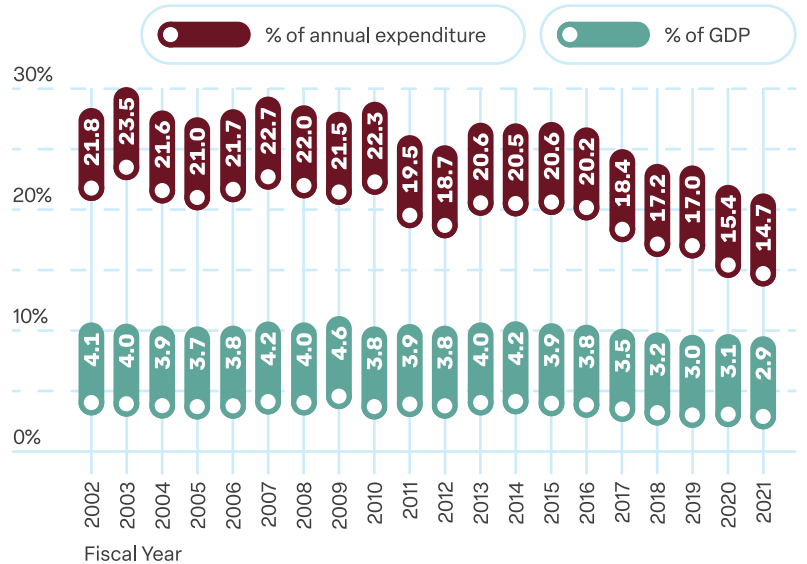
Note: 1) Analysis of the situation of school closures in each country during COVID-19 to March 2021; 2) LAYS (learning-adjusted years of school): Number of years of education adjusted by the learner's quality of learning; 3) Learning and earning losses presented as forecasted results under moderate impact scenarios (intermediate)
Source: Asian Development Bank, 2021

the proportion of school-age children (6–17 years) with the status of “used to go to school but not currently enrolled” declined across the country. However, that proportion increased for youth from families in the lowest 20% income group (i.e., the poorest), especially adolescents age 15–17 or those who should be in high school.

Given the lack of preparedness for schools, teachers, and students to suddenly convert from classroom learning to online lessons, it is not surprising that this transition did not go smoothly. The Ministry of Education promoted the learning management model with the slogan of the “5 On’s” (On-line, On-site, On-hand, On-air, and On-demand). However, the most common problems faced by students and their families were not understanding the learning materials, the lack of concentration, higher expenses, and the lack of IT equipment and internet. A study by the Asian Development Bank (ADB) estimated that the closure of Thai schools due to COVID-19 had, by March 2021, contributed to a 2.5% learning loss, leading to a future 1.1% earning loss when Thai students leave school to begin their career. If the school closures from April to December 2021 were included in the assessment, the above loss estimates could be considerably higher.

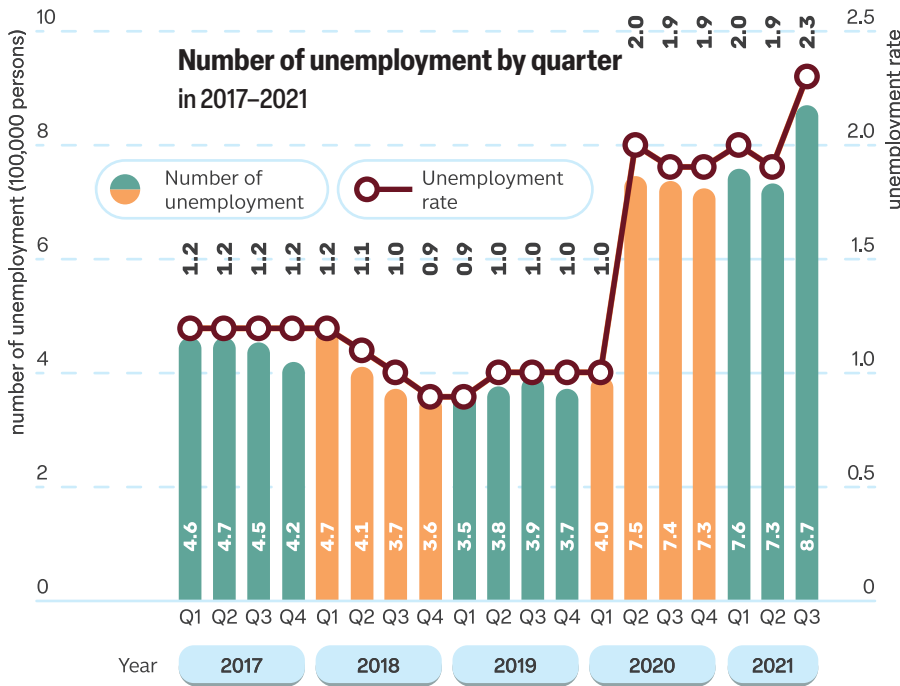
While the government’s expenditure on the formal education system should have increased with the shift to online learning, there was a downward trend in public funding for education during 2020–2021 (as a proportion of GDP).

Expenditure on the formal education

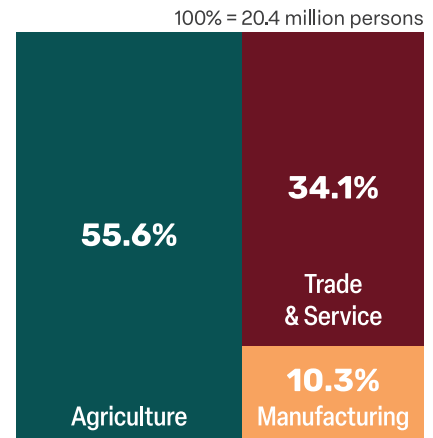


Source: Budget in a nutshell: Bureau of the Budget FY1992–2021, compiled by the NESDC

“ Thailand’s unemployment rate doubled, from 1% to 2%, in the immediate wake of the COVID-19 pandemic, and is continuing on an increasing trend. ”



Percentage of workers in informal sector in 2020 by sector

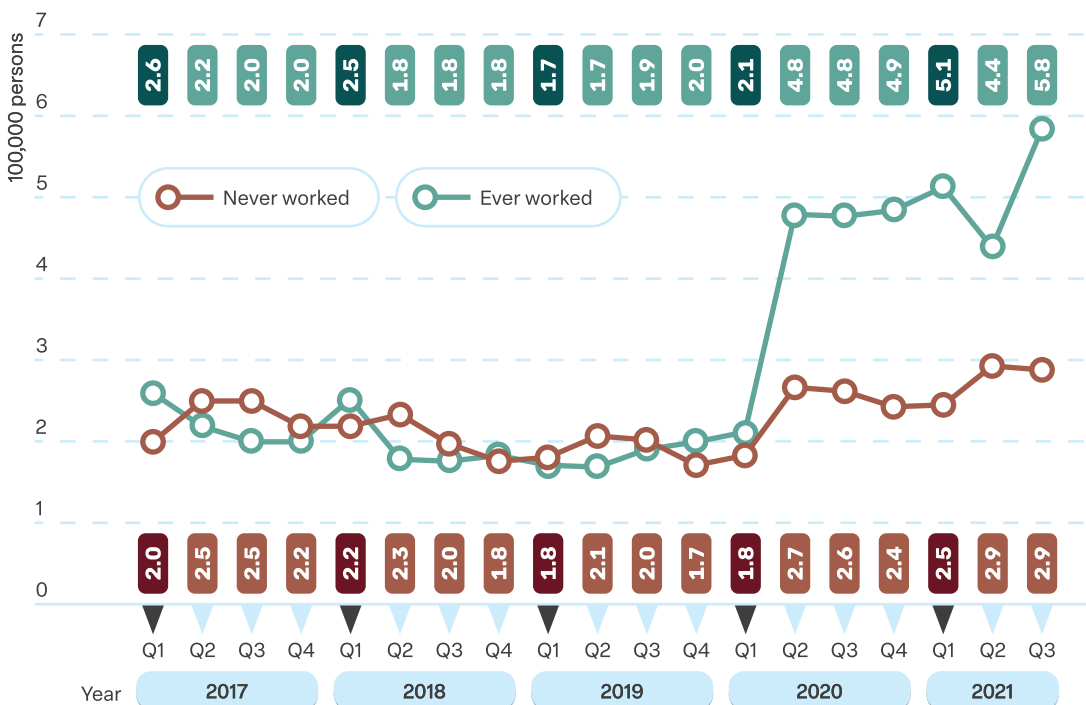


(above) Source: Survey of the non-formal labor sector: 2020, NSO
 (left) Source: 2021 Labor Force Survey, NSO

COVID-19 has affected the working life of Thais unequally. Unemployed people who do not have special skills, or those in the non-formal labor sector are groups that have little bargaining power and no labor protections. Thus, the advent of COVID may have exacerbated inequality that was also quite prevalent in Thai society even before the pandemic.

The rise in unemployment of Thai workers in 2021 is mainly due to job loss and lay-offs. From 2017, the Thai labor force statistics show that the unemployed population was comprised of those who had never

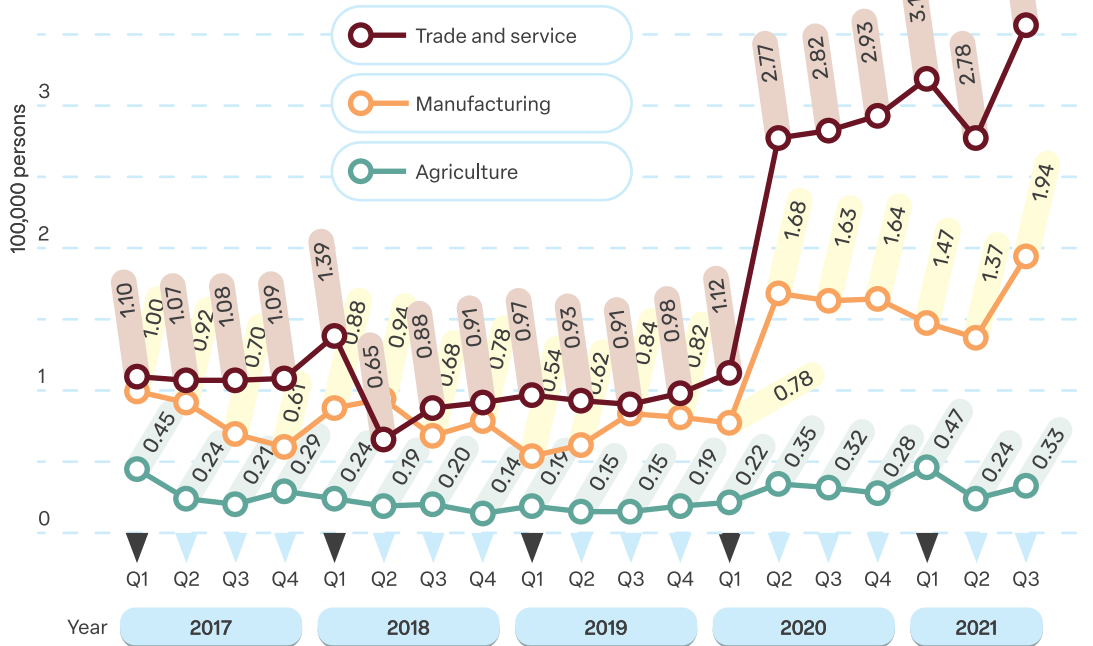
Number of unemployment by quarter and work experience



had a job (i.e., just out of school) and those with work experience, in roughly equal proportions. However, after the COVID pandemic struck, unemployment among persons who have work experience more than doubled from 210,000 to 480,000, while the number of jobless who had never worked before increased only slightly.

Source: 2021 Labor Force Survey, NSO

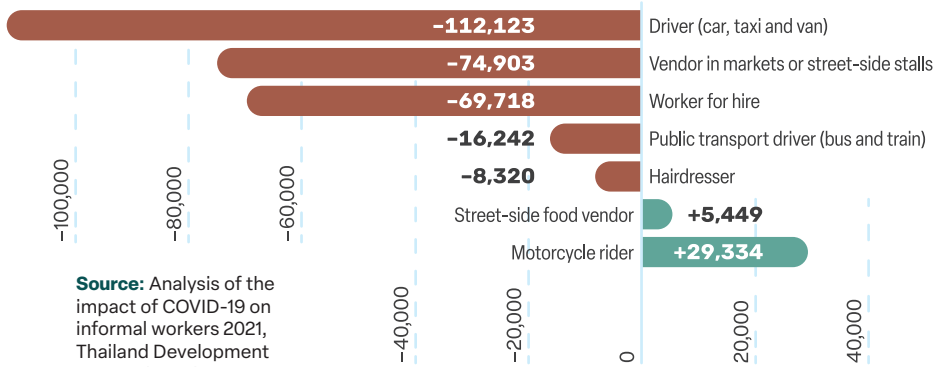
Number of unemployment by quarter and sector



Source: Labor Force Survey, 2021, NSO

The non-formal labor sector is a particularly vulnerable group to a calamity like COVID. Of the 20.4 million informal workers, more than half were in the agricultural sector, 34.1% were in the services and trade sectors, and 10.3% worked in the manufacturing sector. However, the workers in the

Change in numbers of occupation, comparison between Q2 in 2019 and Q2 in 2020

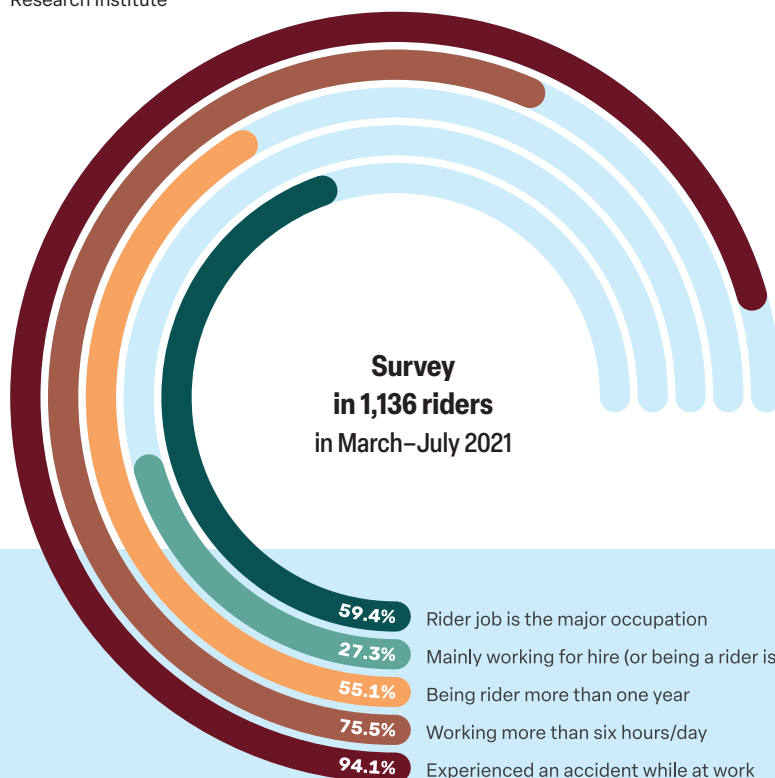


Source: Analysis of the impact of COVID-19 on informal workers 2021, Thailand Development Research Institute

services and trade sectors were most severely affected by the COVID-19 outbreak, leading to 357,000 unemployed Thais in the third quarter of 2021.

The spread of COVID led to major transformations in the services and trade sectors. The number of employees and self-employed professionals, such as hired car and taxi drivers and commuter van personnel, decreased by more than a 100,000. Vendors in markets or street-side stalls decreased by more than 70,000. On the other hand, motorcycle delivery service increased by 30,000 jobs.

The COVID outbreak caused people to avoid public transit and public places such as markets, while increasing the use of home delivery services. The increase in rider jobs needs to be closely monitored, particularly on how to provide the riders job protection and safety.

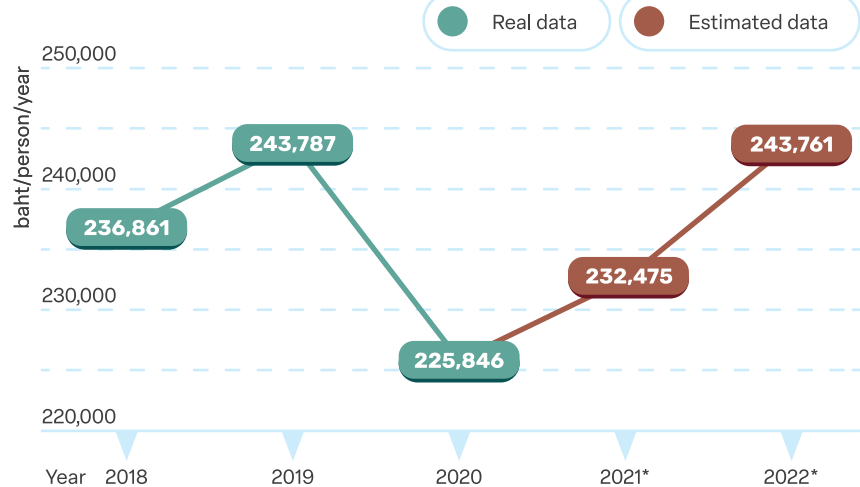


Source: Food Delivery Rider Survey, March-July, 2021, Rocket Media Lab

“ Thailand’s per capita income is expected to have declined for at least two years (2020–2021) compared to the pre-COVID-19 period. ”

The COVID-19 pandemic in Thailand that has lasted for more than two full years is affecting the country’s economic sector at all levels. People’s incomes have declined due to the contracting economy and reduced employment conditions. At the same time, the cost of some basic consumer goods increased. This combination of reduced income and rising cost of living is contributing to worsening of household debt, and poverty may become more severe in the third year of the pandemic.

Per capita income



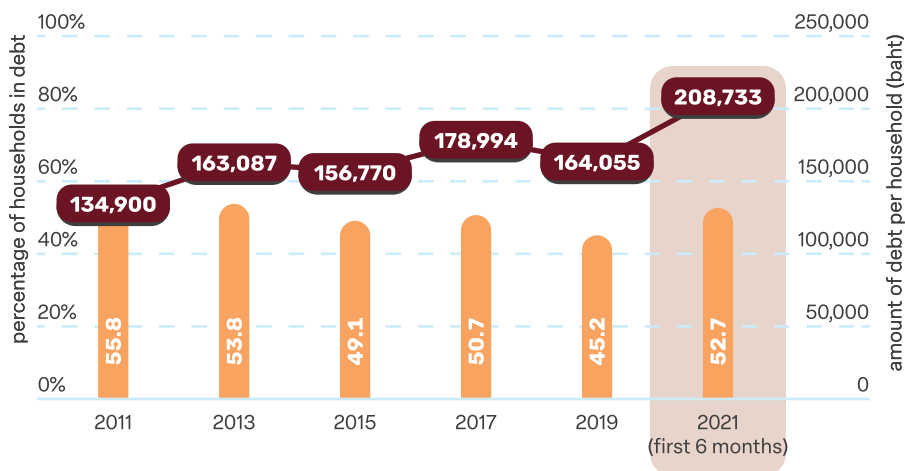
Note: Estimate as of November 15, 2021

Source: Economic Forecast 2021–2022, Thai Economic Conditions Q3/21 and Outlook 2021–2022, NESDC

In 2020, production, trade, and investment—domestic and international—were severely hit by the COVID-19 pandemic, and the strict containment measures in Thailand. The Thai Economic Report of the Office of the National Economic and Social Development Council (NESDC) shows that the country’s per capita income sustained a relatively large drop from 244,000 to 226,000 baht per year, or negative 7.4%. Still, the NESDC also predicted that Thai per capita income will return to the pre-COVID-19 level some time in 2022.

At the household level, a survey by the National Statistical Office (NSO) in the first half of 2021 found that the proportion of total household income coming from work declined to two thirds, translating into a corresponding increase in household dependence on state welfare, in-kind contributions, remittances from relatives working outside the home province, or other donations. The same survey found that household debt had become much worse. The proportion of households in debt rose from 45.2% in 2020 to 52.7% in 2021, and the average total debt per household rose from 164,000 to 209,000 baht, reflecting the dire economic vulnerability of the average Thai household.

Household debt in 2011–2021



Amount of debt per household

Percentage of households in debt

Source: Household Socio-Economic Survey, first six months in 2021, NSO

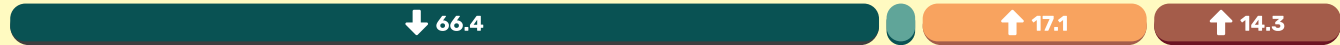
- Work
- Non-recurring income and property
- In-kind income (welfare, good and services received for free)
- Other sources/allowance (from state or someone else)

Income sources

2019



First 6 months of 2021

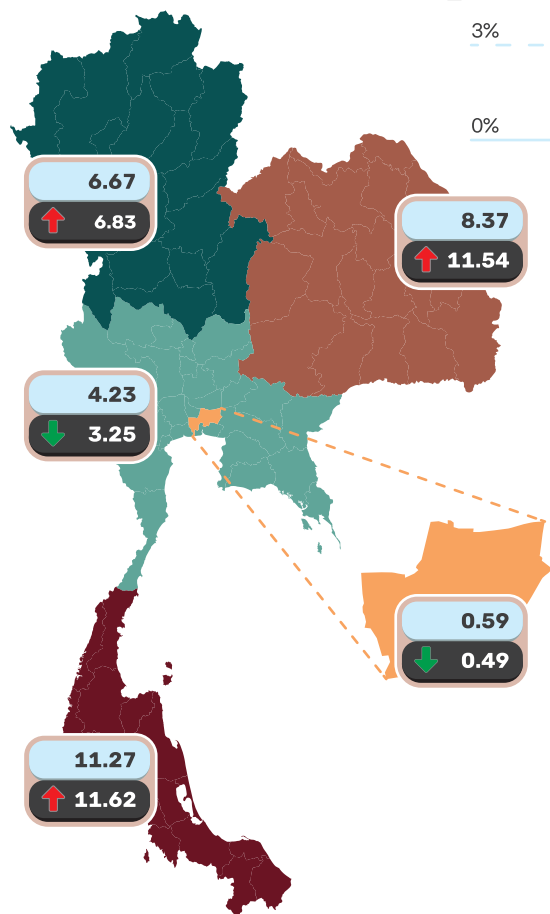


0% Percentage of total income 100%

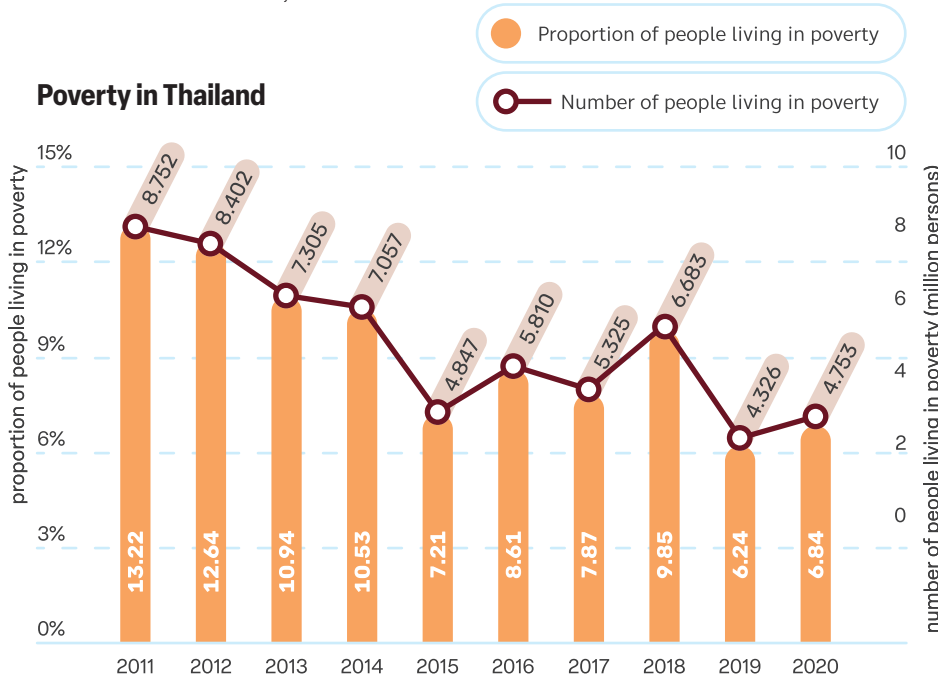
Source: Household Socio-Economic Survey in 2019 and the first six months in 2021, NSO

Proportion of people living in poverty (%)

- 2019
- 2020



Poverty in Thailand



Source: Household Socio-Economic Survey in 2021, NSO, data processing by NESDC

Going forward, a key indicator to track is the proportion of the population living under the poverty line, which had been declining during 2018–2019, but then reversed course and started to increase again, from 6.24% to 6.84% in 2020. The increase in poverty was not distributed equally across regions of the country, and inter-regional disparity became starker. For example, while the proportion of poor in Bangkok and central-region provinces was low and declining, in the northeast and southern regions the proportion was high and increasing. The majority of workers in these regions are in agriculture or the non-formal labor sector.

Source: Household Socio-Economic Survey in 2021, NSO, data processing by NESDC

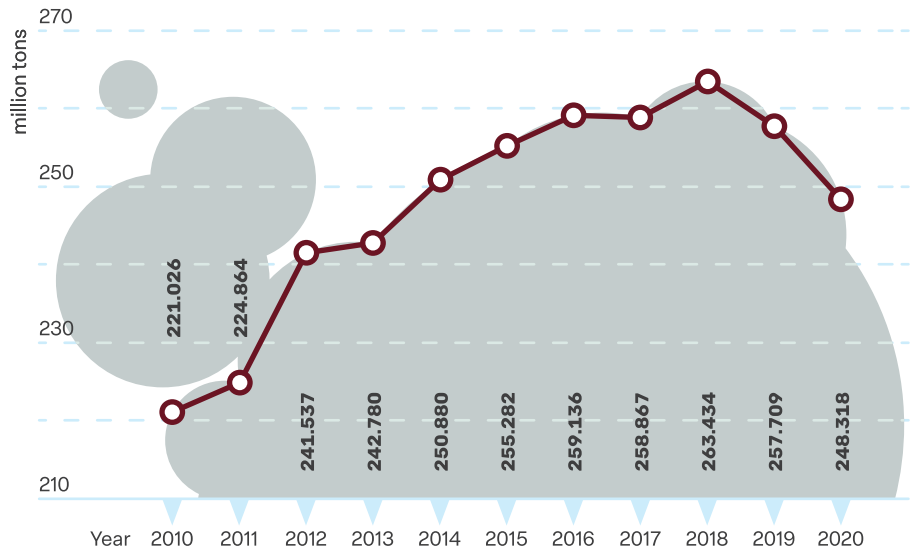
Housing and Environment

“ The amount of infectious waste almost doubled in 2021, with more than 8,234 tons not properly disposed of. ”

The COVID-19 outbreak resulted in reduced carbon dioxide and solid waste emissions in Thailand. However, the volume of plastic waste and infectious/toxic waste still exceeds the capacity of the country to dispose all of it properly.

The rapid contraction of economic activity and shut-down of tourism due to COVID containment measures had a positive effect on the environment. Carbon dioxide emissions (the main cause of the greenhouse effect) declined continuously since 2019, with the transportation and power generation sector showing a marked decrease in carbon dioxide emissions after the COVID-19 spread.

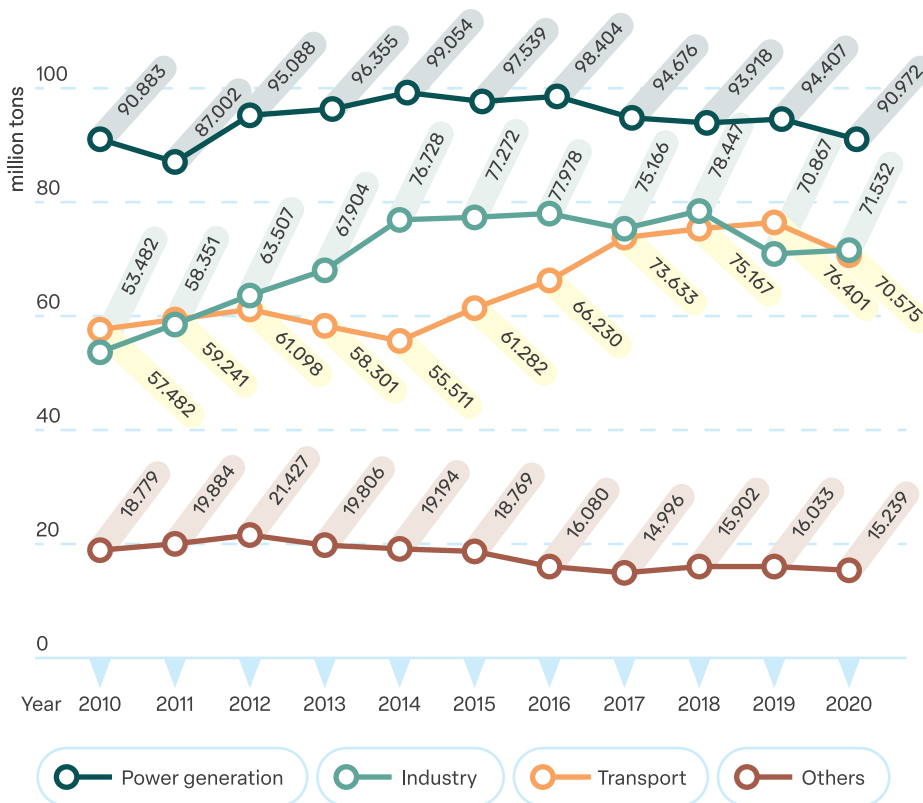
Carbon dioxide emission trend in 2010–2020



Source: Thailand Energy Statistics Report 2021, Energy Policy and Planning Office, Ministry of Energy

Still the spread of COVID also helped reduce Thailand’s overall solid waste due to a slowdown in the business sector as well as fewer domestic and international tourists. However, although overall solid waste dropped significantly from 28.71 million tons in 2019 to 25.37 million ton in 2020, the amount of plastic waste per person increased over the same period.

Carbon dioxide emission by economic sector, 2010–2020



Overall solid waste **decreased**, but plastic waste per person **increased**.



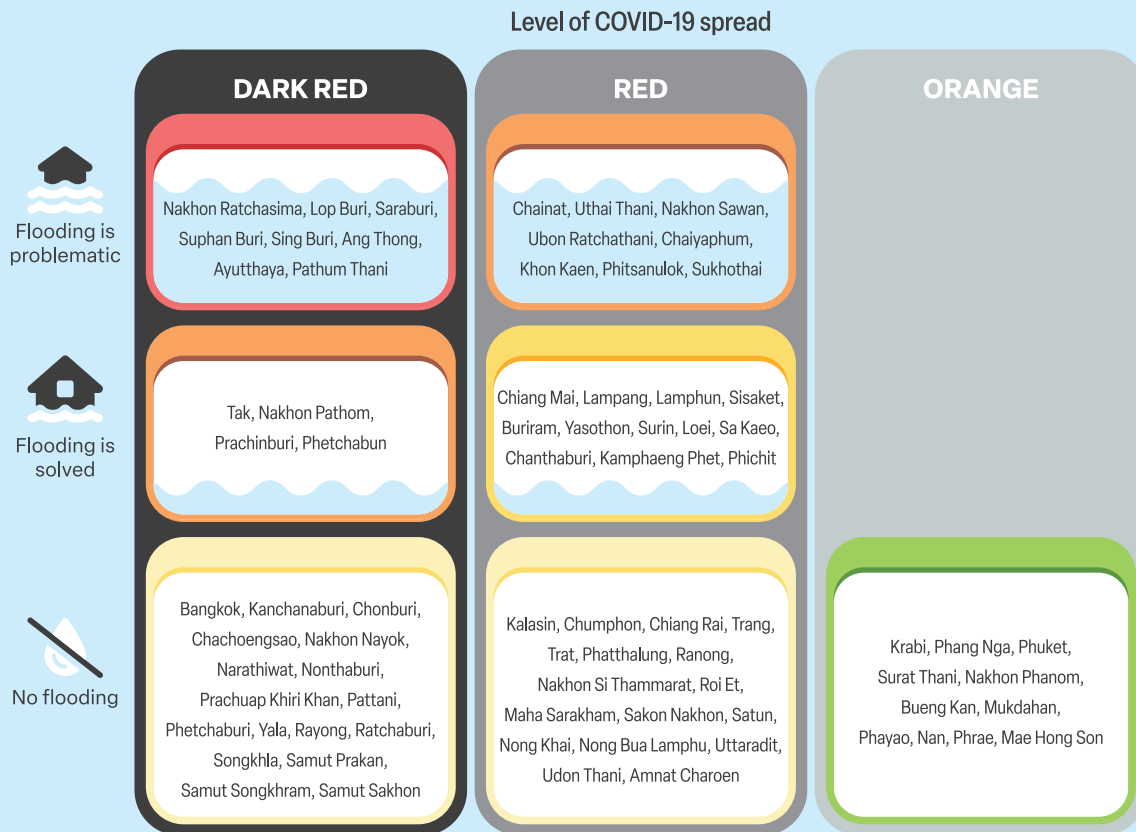
Amount of plastic waste

2019: average 90 grams/person/day

2020: average 135 grams/person/day

Source: Thailand Energy Statistics Report 2021, Energy Policy and Planning Office, Ministry of Energy

Level of risk from flooding and the spread of COVID-19

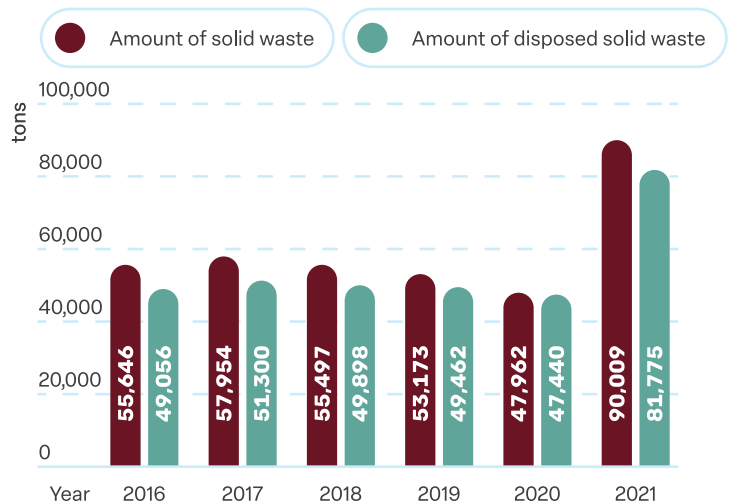


Source: Pongnakorn Phochakon, 2021

Seasonal flooding always has the potential to become a natural disaster in Thailand, and this threatens the environment and housing of Thais in many parts of the country. Although the COVID pandemic did not directly affect the flooding situation, the national effort to try to contain

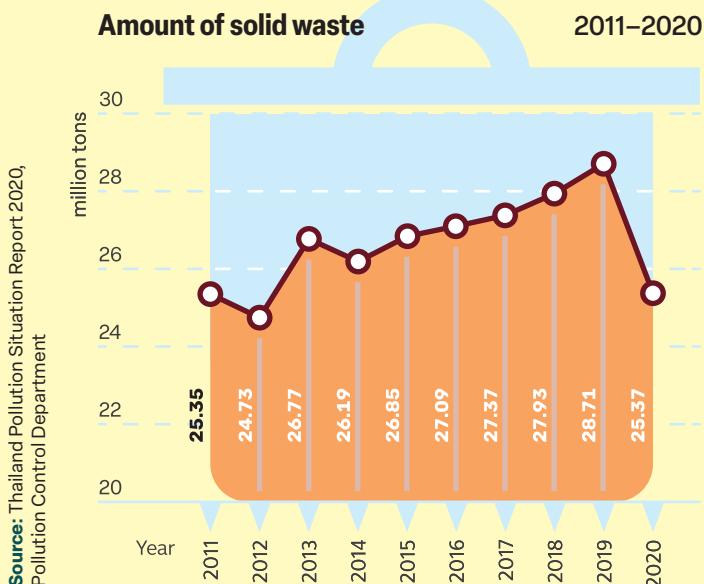
COVID diverted resources from disaster preparedness, and led to shortages of volunteers and budget. In late September to early October 2021, Thailand faced severe flooding in eight provinces, which coincidentally were also battling outbreaks of COVID-19 at the same time.

Amount of solid waste and disposal 2016–2021



Note: From the calculation of the incidence and disposal of infectious waste from various sources such as the Office of the Permanent Secretary of the MOPH and the program to direct the transport of infectious waste (Manifest system), MOPH

Source: Data Processing on Infectious Waste Management 2021, Department of Health, MOPH



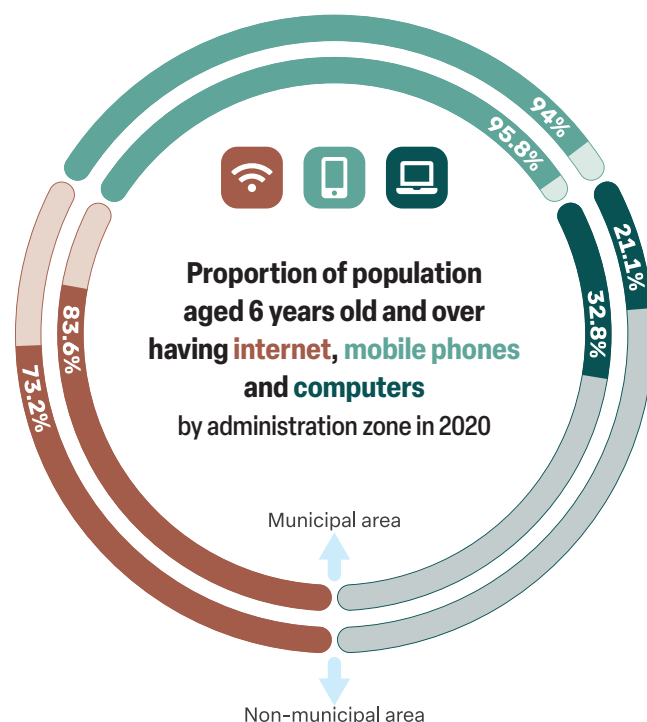
Source: Thailand Pollution Situation Report 2020, Pollution Control Department

10 Family and Community Life

“ In the beginning of 2020, domestic violence increased from 34.6% to 42.2%. ”

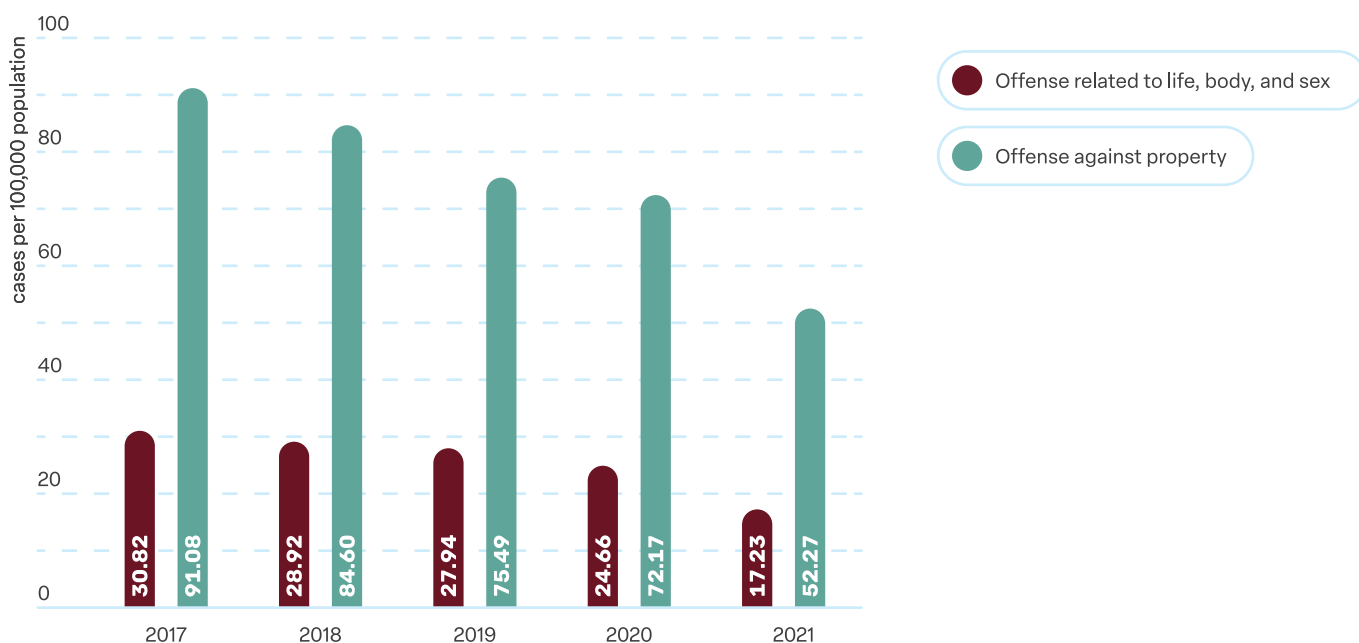
There are large disparities in access to information technology and communication among Thai families, especially in terms of accessing the Internet and having electronic devices. This inequality could result in disparities in other areas as well, especially in children’s education.

The crime rate is one of the leading indicators of family and community life. The trend for this indicator has been steadily decreasing in Thailand since 2017, both for offenses related to life, body, and sex, which in 2021 dropped to 72.2 per 100,000 population, and property offenses declined to 17.2 per 100,000 population.



Source: 2020 Household Information and Communication Technology Use Survey, NSO

Number of criminal cases

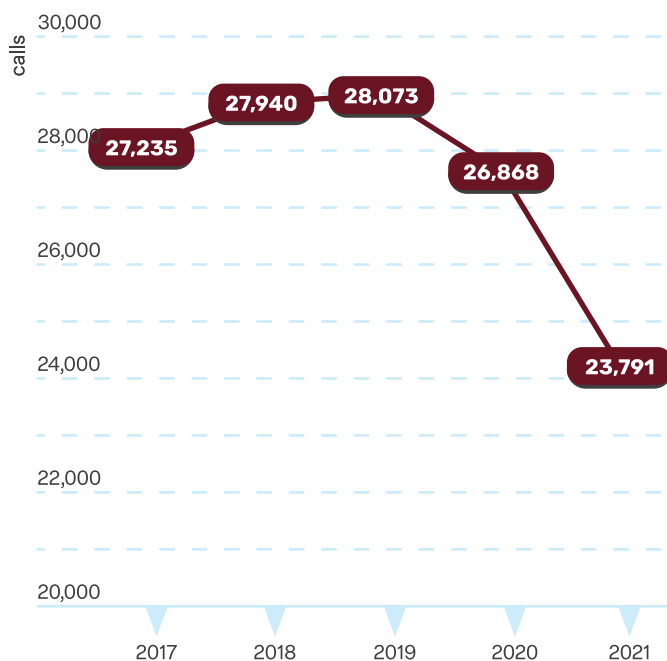


Note: For 2017–2020, data are from January 1–December 31; for 2021, data are from January 1–September 30
Source: National criminal offense statistics, Royal Thai Police

However, the COVID-19 pandemic may have triggered an increase in domestic violence from stress, and friction in the family during lockdowns. The data in early 2020 show that domestic violence increased, but then declined in 2021. That finding is in line with reports from the National Institute of Emergency Medicine (Crisis Response Hotline #1669) which show that calls to report assault to the Hotline declined steadily since 2020.

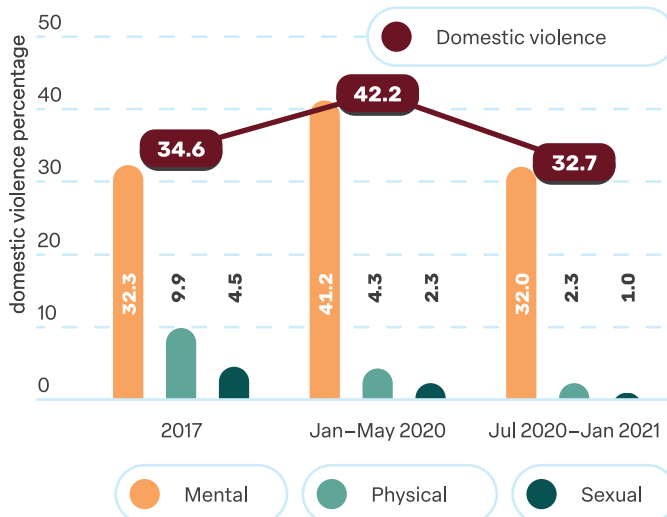
Still, with severe outbreaks of COVID, starting in April 2021, community isolation centers were created to accommodate COVID-19 patients with mild symptoms to reduce community spread. The guidelines for establishing a community isolation center involved a collaboration between the government and Civil Society organizations in the area, or in the community itself. By the end of 2021, the “Omicron” variant of COVID was found to be more contagious, but with milder symptoms, prompting increased home isolation throughout the country.

Number of calls to 1669 for assault

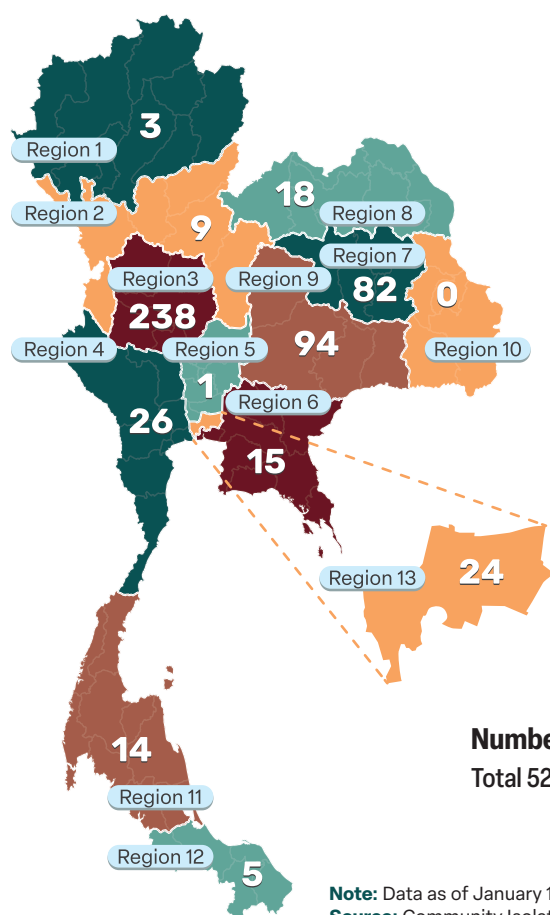


Source: Information System, National Institute for Emergency Medicine

Proportion of violence against women and family members



Source: National Survey Report 2017: Thai Domestic Violence against Women and Individuals; National Survey Report 2021: Domestic Violence under the COVID-19 Pandemic Situation, Domestic Violence Knowledge Management Center Ramathibodi Hospital



Number of community isolation centers

Total 529 centers nationwide

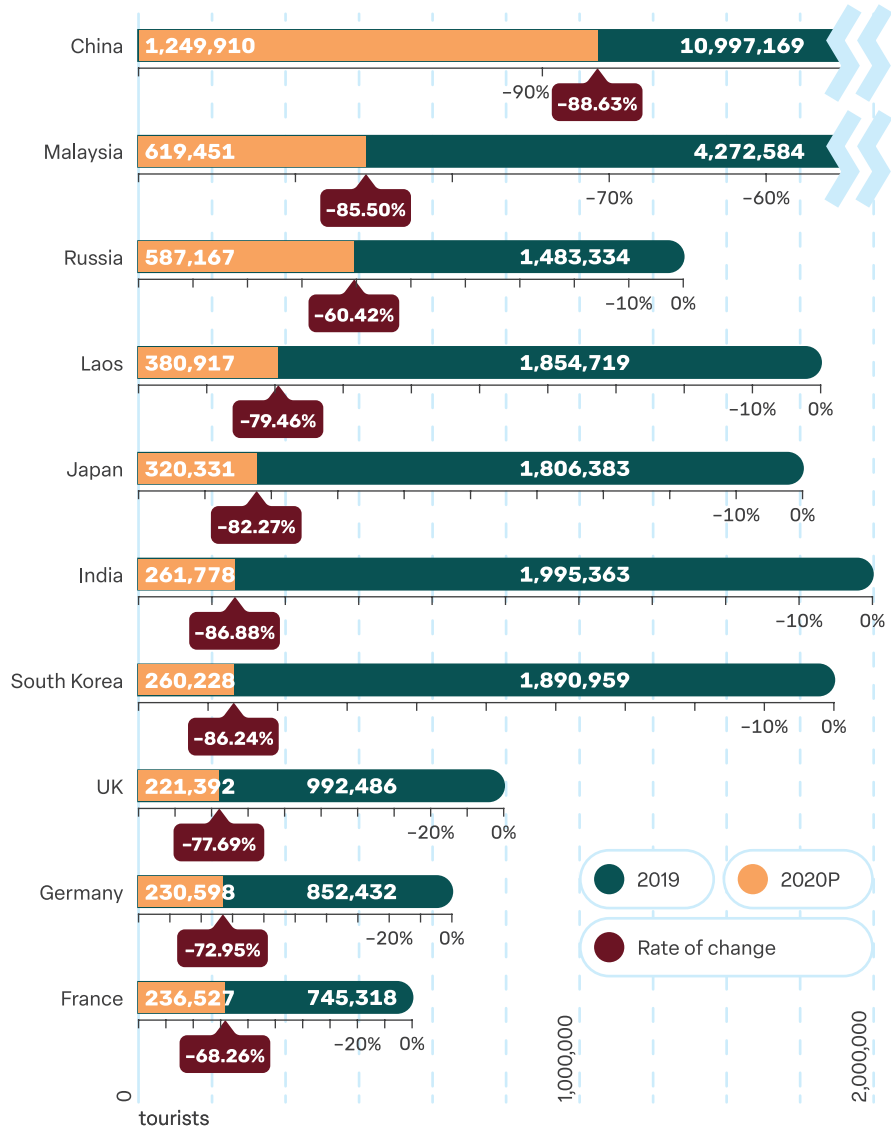
Note: Data as of January 11, 2022

Source: Community Isolation Registration Center, Department of Medical Services

Number of tourists
Top 10 by country

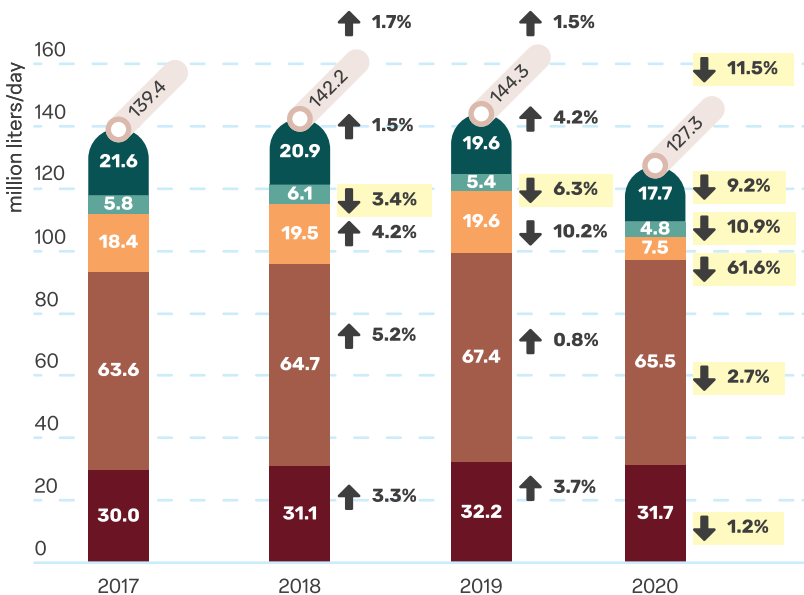
“ There was a **significant reduction** in road accidents during the COVID-19 outbreak. As a result, the death rate from road accidents decreased accordingly. However, adolescents and youth are still at risk, and authorities also must keep an eye on trends when people resume their travels as they did in the pre-COVID era. ”

COVID-19 has reduced the number of people traveling by public transport, and international travel and tourism plummeted globally. This situation killed the tourism and services sectors. The economic recovery after the pandemic subsidies will be a big challenge for the country.



Note: 'P' means preliminary information (as of January 2021), and subject to revision later
Source: Tourist Statistics 2021, Division of Tourism and Sports Economy, Office of the Permanent Secretary, Ministry of Tourism and Sports

Average use of refined oil by day



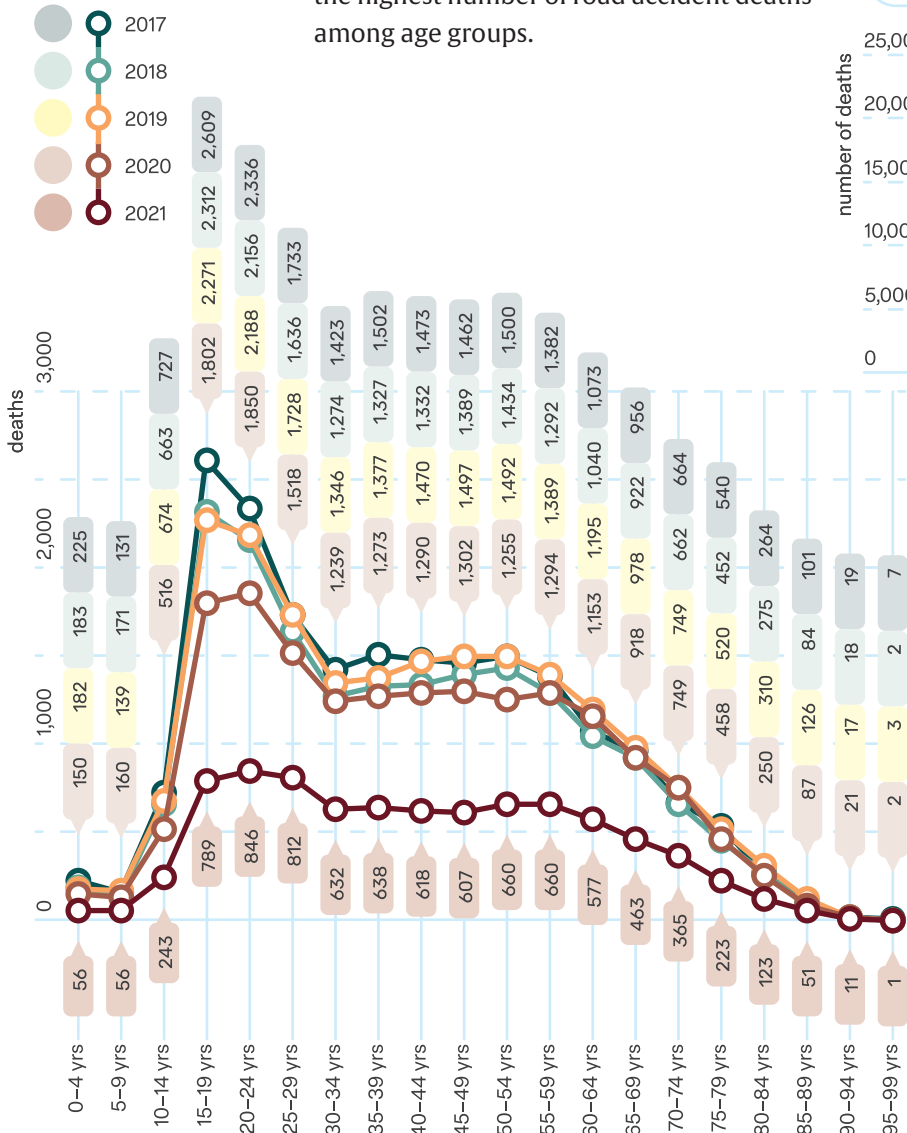
Note: *Jet fuel and kerosene **Excluding the use of LPG as feed stock in petrochemicals
Source: Thailand Energy Statistics Report 2020, Bureau of Energy Policy and Planning Ministry of Energy

The drop in global tourism due to the spread of COVID had a huge impact on Thailand. Tourists from China to Thailand dropped from around 10 million per year to 1.2 million in 2019–2020, representing nearly a 90% drop in visitors from that country alone.

In addition, the number of people traveling by mass transport has decreased since 2020, whether by road, rail, or air, resulting in a reduction in the use of refined fuel in all categories, but especially airplane fuel.

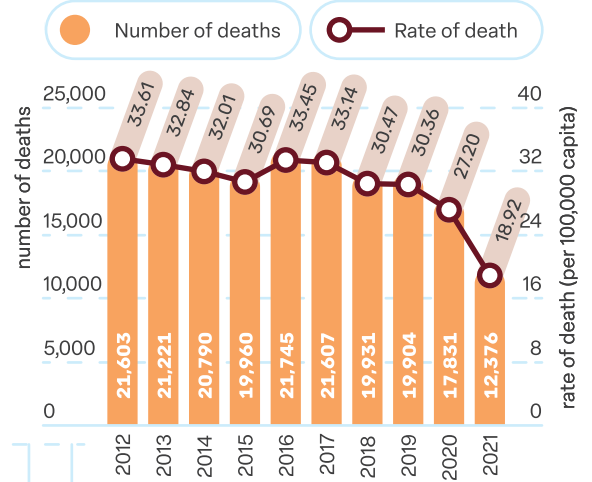
↑↓ Rate of change (%) compared with the previous year
 ■ Gasoline and gasohol ■ Fuel oil*
 ■ Diesel ■ Airplane* ■ LPG**

Number of deaths from road accidents in Thailand by age group



One of the few silver linings of COVID-19 is that the reduced road travel has led to reduced road accidents, and related injury and death. Still, Thais age 15-24 years had the highest number of road accident deaths among age groups.

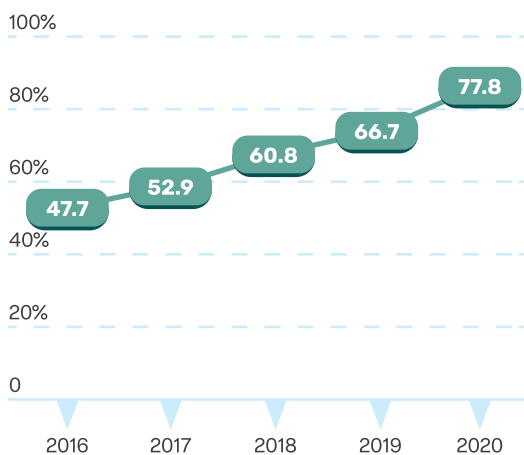
Number and rate of deaths from road accidents in 2012-2020



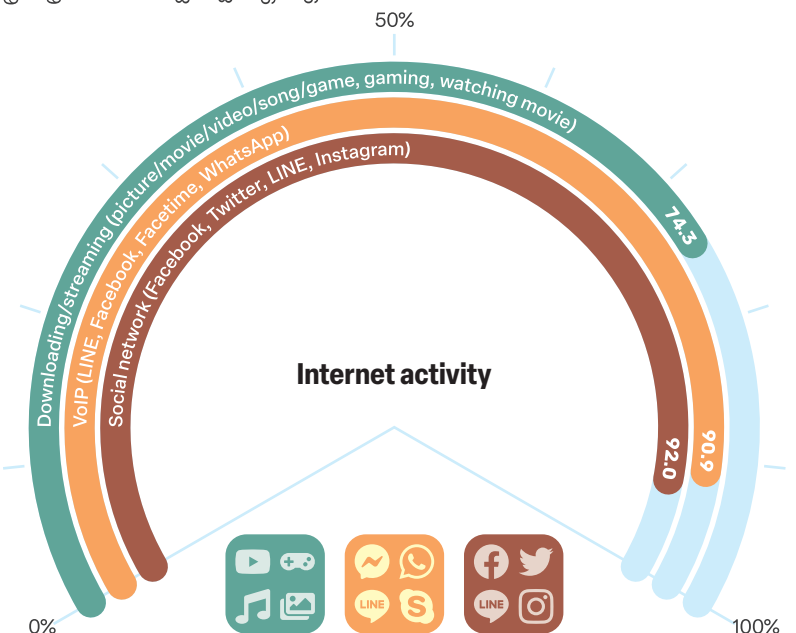
Source: Deaths from road accidents in Thailand in 2021, Injury Information Cooperation Center, Department of Disease Control, MOPH

The spread of COVID-19 has resulted in a dramatic change in daily life, leading many Thais to shift to online communication. There was a marked increase in Internet usage by Thais of all ages in 2020. Surveys indicate that the most common use of the Internet was social media (Facebook, Twitter, LINE, Instagram), followed by Internet phone calls (VoIP), and downloading/streaming, in that order.

Internet-using behavior



Source: 2020 Household Information and Communication Technology Use Survey, NSO



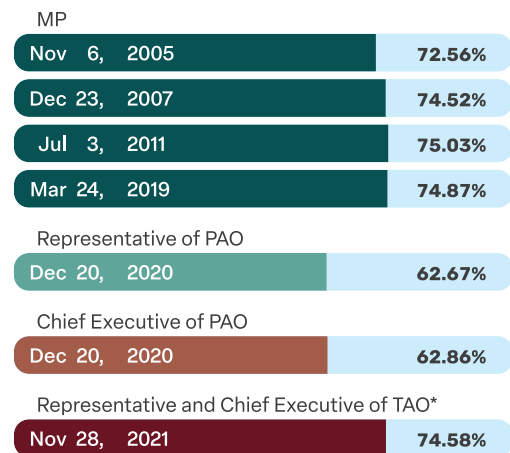
“ 4 out of 5 Thais have a positive attitude toward cooperating with government development programs, and feel free to discuss politics among acquaintances. ”

Public participation in politics and society is one of the important elements for the development of a nation. Under the new normal brought about by COVID, people have learned to be more adaptable and resilient. In addition, Thais are accessing digital information more than ever before, and online platforms will be a more important channel of communication for Thais in the future.

From 2005 to 2019, the participation rate of eligible voters in the national elections of members of the House of Representatives, has been relatively stable at approximately 75%. But in the local elections of the Provincial Administrative Organization (PAO) in 2020, less than two-thirds of the eligible population voted to select officers. It is unclear whether the relatively lower turn-out was due to concerns about COVID-19 or not. However, in the election of councilors and chief executive of the Tambon (sub-district) Administrative Organization (TAO) at the end of 2021, the voter turn-out returned to its typically high level as in the pre-COVID period. In addition to exercising the right to vote, political participation can be expressed in a variety of ways. A 2020 survey found that Thais are quite politically involved in the sense that they seem willing to support government programs for the development of the nation. Thais also feel free to discuss politics and exchange political views with others. They pay attention to election results and will actively canvass for their preferred candidates.

Percentage of voters

by electoral type and election date



Note: *Unofficial numbers as of December 2, 2021
Source: Election Statistics 2021, Office of the Election Commission

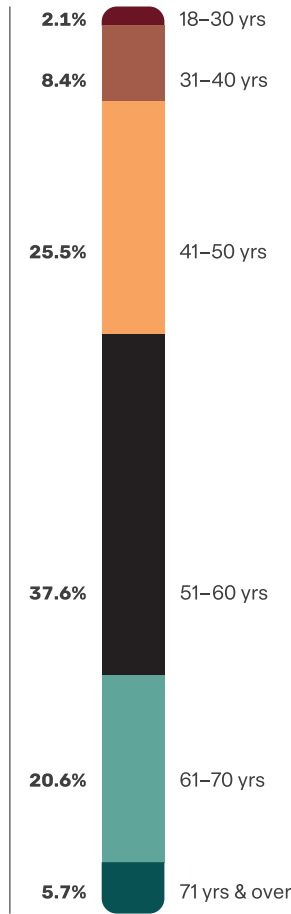
People's participation in politics in 2020



Source: National Reform Plan 2021, Citizen Participation Survey, NSO



Source: Community Organization Development Institute and the Department of Administrative Affairs, Ministry of Interior 2021, NESDC

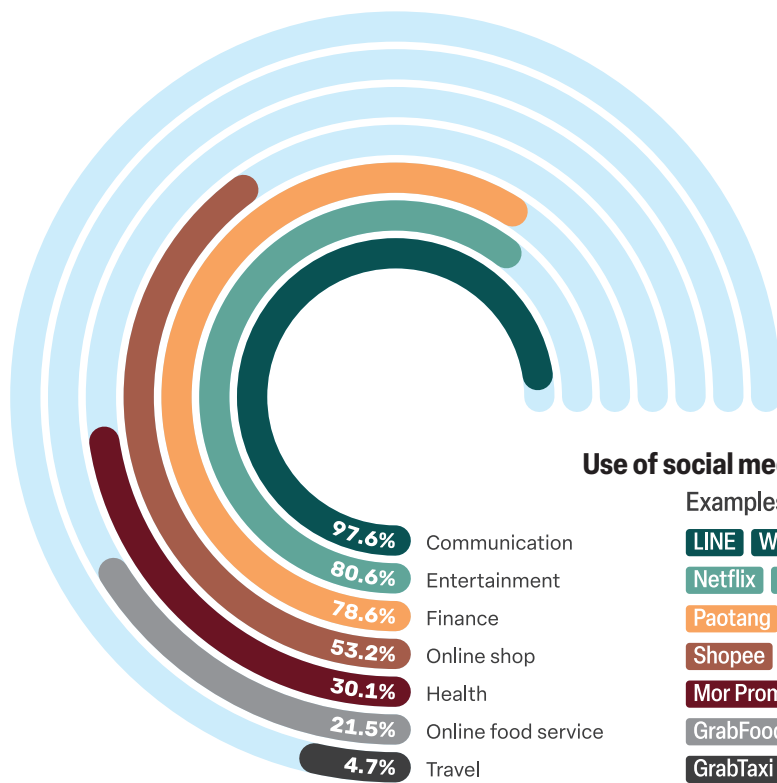


Number of VHVs nationwide by age group 1,084,673 persons

Source: National VHV report 2019, Public health information system, Department of Health Service Support, MOPH

During the COVID pandemic, Village Health Volunteers (VHVs) and civil society organizations have played a significant role in supporting prevention and containment of the virus. They worked hard to educate the general public and vulnerable groups. They helped provide care and assistance to the infected and their families, including those adversely impacted by the containment measures. At present, there are about 1.09 million VHVs across the country, and the number of community-based organizations has tended to increase over time, especially in 2019 that the number rose almost two-folds. However, Bangkok stands out for its dearth of these organizations. Thus, during a crisis, such as COVID, the lower-income and vulnerable populations in Bangkok do not know who to turn to for assistance.

In the future, social media and the use of Internet applications across digital devices should be the principal mechanism for promoting more participation of people from all segments of society. At present, the number of Internet users in the country has continued to increase. A 2021 survey found that almost all Thai users of the Internet used platforms for interactive communication, about four in five used the Internet to access entertainment programming, and more than three-quarters logged on to conduct financial transactions.



Use of social media and application of internet users in Thailand

Examples

- LINE WhatsApp Facebook Twitter Instagram
- Netflix YouTube TikTok
- Paotang Thung Ngoen bank apps
- Shopee Lazada Big C Lotus Online
- Mor Prom Non Prom BetterMe
- GrabFood LINE MAN Foodpanda Robinhood
- GrabTaxi GrabCar

Note: Excluding non-Internet users, which accounted for 18.1 percent of the sample in the survey

Source: Public opinion poll on the situation of the COVID-19 pandemic (Adaptation and Digital Accessibility) June 23–July 6, 2021, NSO

Format for Citation

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Nakhon Pathom: Institute for Population and Social Research, Mahidol University.

Example of Citation

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Nakhon Pathom: Institute for Population and Social Research, Mahidol University.



Outstanding Health Situations



COVID-19 and “Work From Home”: What is the Impact?



Image: freepik.com/free-photo/freelance-asia-women-wear-face-mask-using-laptop-hard-work-new-normal-office-working-from-home-overload-night-self-isolation-social-distancing-quarantine-corona-virus-prevention_10073990.htm

Since the advent of the COVID-19 epidemic in Thailand at the beginning of 2020, the government has taken various measures to control the spread of the disease. This includes imposing targeted lockdowns and policies for working from home (WFH) for both public and private offices. The harsh COVID containment measures in 2020 and 2021 had an enormous impact on people and businesses across all segments of the economy and society. In some sense, this drastic response created a **“lockdown generation”** that, without supervision and support, might be a **“lost generation”** who were forced out of the labor market. On the surface, WFH would seem to have many benefits, such as reducing the risk of infection and increased work efficiency. However, there is increasing recognition of the potential detrimental effects of WFH which may manifest in stress and depression. This article discusses the impact of COVID lockdown measures enforced by the Thai government which took place in 2020 and 2021, the impact of WFH, and opinions on how to adjust and adapt to reduce the negative impact of WFH.

“ Although working from home has many benefits, such as reducing the risk of infection, and increasing work efficiency, it can have a downside effect on the mental health of many people, as manifested in stress and depression. ”

Lockdown

The COVID-19 pandemic is assumed to have begun in late 2019, and governments around the world have taken various measures to combat spread of the virus, such as prevention education, distributing sanitary masks and alcohol gel provision of vaccination, and lockdowns where outbreaks are discovered. The Collins Dictionary defines “lockdown” as compulsory measures or limiting travel, social interaction, and access to public areas. However, each country has implemented different measures depending on the perception of the severity of the situation.¹ Two of the most influential countries in the implementation of lockdown policies are China and Italy, which initially faced overwhelming caseloads, leading to overflow of patients in hospitals, and near collapse of the health system. The first global wave of COVID spread was in 2020, and the lockdown, as a ‘containment measure,’ has since become a virtual policy in many countries, such as² the United Kingdom, Denmark, Germany, and France.^{3,4} Many countries have asked (or required) people to shelter in place and self-quarantine if they had potential risk of exposure. People were advised to only leave their home or domicile when absolutely necessary. Many schools were temporarily closed, and instruction shifted to online or remote teaching. Restaurants could only remain open for take-out orders.



image: unsplash.com/photos/mpbW_fvpEJs

The afternoon atmosphere during lockdown April 2020 in Lucerne, Switzerland, which would usually be packed with people

In Thailand, the government declared a state of emergency throughout the Kingdom on March 24, 2020,⁵ and effective on March 26, 2020, with the first set of 16 “directives” as a guideline.⁶ These guidelines were in the form of what was prohibited, what should be avoided, and what should be done. People were generally advised to remain at home, refrain from holding or attending activities in public areas, and practice social distancing. However, in 2021 the government began to relax its control and containment measures, and there soon followed outbreaks of the Delta variant of COVID-19 which was more infectious than the original virus. On July 12, 2021,⁷ lockdown measures were re-imposed. At this point, more offices and worksites continued the transition to 100 percent WFH wherever possible. In addition, the government imposed a curfew for non-essential travel from 21.00–04.00 hours. Malls and restaurants had to close by 9 p.m., if they were allowed to open at all. Many restaurants shifted to take-out only, while people were required to wear sanitary masks and practice social distancing including dining together at home and in office.¹² On August 1, 2021, the Thai government continued to order the one-month-extension of emergency measures and lockdowns, however, by now, it was too late and the Delta variant showed no signs of slowing. Finally, on August 29, 2021, the government announced the easing of restrictions and lockdowns as it was rolling out the vaccination program for the entire population. Still, the number of reported infections continued to climb, reaching a new peak of 15,972 cases in a single day, with the cumulative number of COVID infections exceeding one million persons (i.e., 1,161,200).^{8,9}

Easing of lockdowns and learning to live with COVID-19

In 2021, several European countries announced the relaxing of lockdown measures, such as the Czech Republic started to allow people to travel into the country on business, visit relatives, or travel out of the country for medical reasons. Workers who had to travel across borders on a regular basis, such as truck drivers, had to quarantine upon their return. In Spain, Austria and Denmark, their governments allowed some businesses to reopen, while most bars, shops, and public spaces remain closed. Switzerland started easing lockdown measures with the gradual re-opening of businesses and schools. Germany started its relaxations with small shop openings, while high-volume public events such as concerts and football matches were still banned.¹⁰

In Thailand, the lockdown could reduce the number of infected cases and the pressure on medical services. The government had confidence to remove more and more of the restrictions. On July 1, 2020, more malls, shops, and restaurants started re-opening.¹¹ The government strategy shifted from trying to eradicate COVID-19 to helping the population learn to live safely with the virus. On September 1, 2021 the Center for COVID-19 Situation Administration (CCSA) formally announced the relaxation of major containment measures, with the following advisory:¹⁷

1

People must practice universal precautions when in contact with others whose infection status is unknown. In other words, people should assume they will be exposed to the virus when out in public or mixing with others indoors.

2

Establishments must strive to be “COVID-free settings” by maintaining hygiene, having a good ventilation system, instituting measures to require social distancing, having all staff being fully vaccinated against COVID-19, and having all staff be regularly tested for COVID-19 using the ATK diagnostic.

Throughout the Thai epidemic, the government assessed and classified provinces by three levels of risk: Highest control and strict, highest control, and controlled areas.^{12,13}



Image: [freepik.com/free-photo/asia-businesswoman-using-laptop-talk-colleagues-about-plan-video-call-meeting-while-working-from-home-living-room-self-isolation-social-distancing-quarantine-corona-virus-prevention_10074863.htm](https://www.freepik.com/free-photo/asia-businesswoman-using-laptop-talk-colleagues-about-plan-video-call-meeting-while-working-from-home-living-room-self-isolation-social-distancing-quarantine-corona-virus-prevention_10074863.htm)

“The Lockdown Generation—A Lost Generation”

The International Labor Organization (ILO) has estimated that the COVID-19 pandemic may have a permanent effect on large segments of the younger generation “throughout their working life.” An ILO survey found that people age 15–24 years were heavily impacted by COVID-19 due to the containment measures which led to layoffs, and lost jobs and employment opportunity, and the impact was more pronounced on this age group than any other. The types of businesses that were most affected were wholesale-retail, motor vehicle repair, factories, real estate, housing, and hospitality sectors. The ILO referred to persons who had just graduated or were starting to work when the pandemic struck as the “**lockdown generation.**” Without remedial support and interventions from all sectors, this cohort of younger working-age persons is in danger of becoming a “**lost generation.**”¹⁴ The implication of the ILO analysis is that large segments of the youngest working-age population might be permanently thwarted from joining the mainstream labor market. This cohort was severely affected by layoffs. In addition, COVID eliminated many of the opportunities for continued education and vocational training. To add to these external limitations, many of the vulnerable youth were driven into deeper poverty. This triple threat drained the motivation out of this age group of the population, who otherwise would be motivated and optimistic about their future in the labor force. Unfortunately, some may simply have given up trying, and neglected to attain the education and training required to climb a career ladder in the formal economy. The ILO is calling on governments to focus special attention on these vulnerable youth in their own societies, and devote adequate resources to help them complete their formal education or vocational training, and develop professional skills.

The impact of work from home (WFH)

In Thailand, the 2021 lockdown measures were similar to those in 2020, such as shutting down all non-essential services and imposing curfews in some locations. However, by 2021, different patterns had emerged which reflected the adaptation of businesses and organizations. In some cases, nearly the entire workforce of a business or organization was assigned to WFH. This included most of the schools in the formal education system, colleges, and universities. The option to WFH is important for many people to retain their jobs and income during a pandemic. However, the prolonged period of adaptation is also creating a “new normal.”¹⁵

WFH is one form of social distancing to reduce exposure to COVID-19. In that sense, WFH is simply a modification of self-isolation or home quarantine. Thus, the less contact with others, the less chance of being exposed or transmitting the virus. WFH is not a new concept, and has been applied in the form of “flexiplaces” in USA. WFH has many inherent advantages for the employer and employee. For example, it has been shown that WFH can increase worker efficiency and productivity in some sectors and occupations. WFH reduces the need for additional workspace and reduces the cost to the organization in housing a workforce. However, WFH increased exponentially after the sudden arrival of COVID-19. A survey by Price Waterhouse Coopers (PwC)¹⁶ found that many companies were able to relocate the majority of their office workers to remote work, accounting for 73% of their workforce.

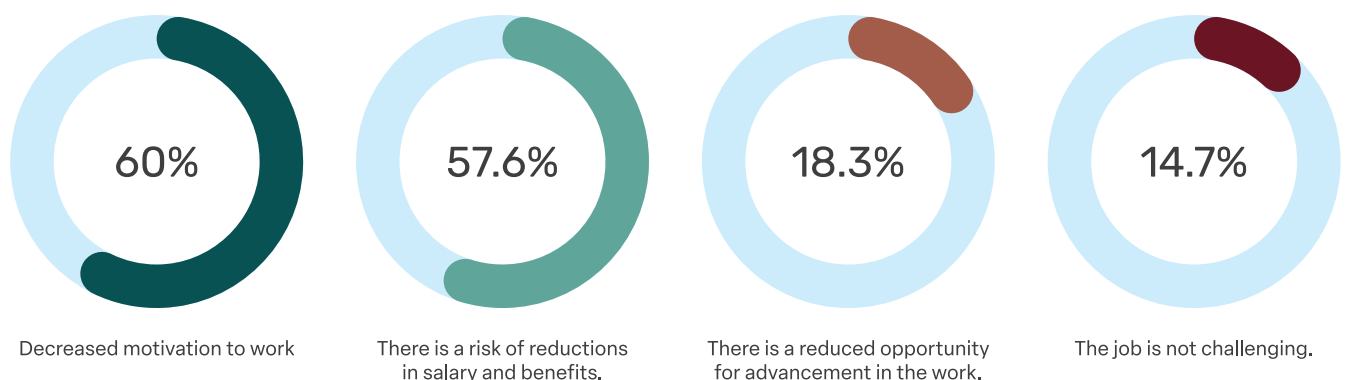
In Thailand, the Thailand Development Research Institute (TDRI) studied the impact of WFH during COVID-19 over a period of April-May, 2020. TDRI found that WFH had a positive effect on both the employer and employee, both in terms of reduced direct costs and time saved from commuting. Combined, these can increase work productivity with no increased investment by the employer. Some employees may feel more positive about their employer by the implied trust and autonomy in being allowed to WFH. The person who works remotely usually has a quieter working environment while still being able to participate in meetings with colleagues and bosses both inside and outside the organization. WFH also has a positive impact on society by reducing the amount of commuter traffic on the roads and, on a macro level, this can reduce fuel consumption and air pollution.¹⁷

On the other hand, the Kasikorn Research Center¹⁸ found that employees’ views on WFH or work from anywhere could also produce a decrease in motivation to work (60.0%), a risk of reduction in salary and benefits (57.6%), a decrease in career advancement (18.3%), and a lack of challenge to the work (14.7%). Adjusting to WFH means having to program one’s daily life in a new way, and dealing with prolonged periods of being alone or isolated from one’s peers and coworkers. This can lead to a decreased sense of attachment toward one’s organization and colleagues, a reduction in experience in life, and exacerbation of underlying mental health struggles.¹⁹

Phichawee Mekkayai from iSTRONG, a mental health service provider, commented on the view of psychologists that WFH may demand severe changes and adjustments in employees, as well as the organization itself. Everyone has to understand and adhere to the WFH guidelines, while the employer has to implement new monitoring systems to ensure a fair level of effort. As noted, people who suddenly have to WFH after being accustomed to a stimulating and interactive workplace may experience adverse mental health conditions.²⁰ Also, people may suffer from a lack of concentration, distraction by the people in the household, competing demands on their time, feelings of inertia, and inability to structure their daytime schedule by separating work and personal errands, among other challenges.

The Thai Department of Mental Health of the Ministry of Public Health has observed that, when employees have to WFH for a prolonged period time, they will start to experience **loneliness** or called **work-from-home loneliness**.²¹ People are social beings, and part of the enjoyment of the workday is having in-person interaction with peers and

Employee’s view of work from home or work from anywhere toward progress professional (as a percentage of the sample)



Source: Kasikorn Research Center, 2021

colleagues on a regular basis. This interaction may simply consist of small exchanges, greetings, brief chatting and sharing of news. These types of social interactions are fundamental to human behavior. When an employee is suddenly deprived of these workplace interactions, this can lead to **work-from-home loneliness**.²² Then it can be expected that a significant number of workers will experience poor mental health outcomes, such as depression, stress and/or anxiety. An increasing sense of isolation may cause friendships to wither and a diminished sense of mutual obligation to help colleagues when they encounter work-life problems. From a business perspective, such a decline in mental health would directly contribute to reduced productivity and impaired quality of work. Ultimately, WFH can contribute to increased employee turnover and difficulty finding replacements.

Reflections and recommendations

Past lockdown measures impose a high cost to the economy and society. Lockdowns should be done only temporarily and in ways that people can anticipate when a lockdown will end. Currently, Thailand uses a quasi-lockdown strategy by strongly encouraging vulnerable people to stay at home and restrict non-essential travel. Past lockdowns have led to new claims for workers' rights and freedoms, and these are morphing into political movements on behalf of various groups adversely affected by such harsh measures. Clearly, everyone would like people to be able to return to full-time employment and an acceptable quality of life, even though it may entail "new normal" adaptations.

However, as long as COVID-19 is still considered a pandemic, WFH will remain one of the key social-distancing strategies to prevent or limit outbreaks. This requires an acceleration of information technology (IT) to help people live a more digital-economy lifestyle. Therefore, the government should set the goal to "Develop the technological infrastructure and digital ecosystem to enable everyone to have universal access to IT." The state needs to create opportunities in the digital economy, and reduce the "digital divide" by facilitating access to the digital infrastructure and digital platforms. Such a new-normal way of living would include the following guidelines:

1

Increasing the right to access the IT network, such as reducing service fees and supporting the use of 5G technology

2

Opening up access and opportunity by building knowledge and understanding of the use of IT ('peopleware')

3

Creating an agricultural digital platform/marketplace for easy access.

In order to reduce the impact on mental health, the Department of Mental Health recommends that attaining and maintaining an optimal work-life balance is important. One way to facilitate this is to adjust the environment so people are as close to the workplace as possible. If WFH becomes more prevalent, then people need to have a set



image: unsplash.com/photos/smgTvepind4

Online meetings instead of face-to-face meetings

Summary

of guidelines in order to make WFH cost-effective and productive. People who WFH should maintain a workday routine, setting out time for work and time for personal errands or chores. People should not take work to bed. They should create a suitable space for work in the home which has minimal distractions or disruptions. People who WFH should set a fixed time for meals and breaks, just as they would have in the workplace. Each day, there should be a more-or-less fixed time to end the workday, and time should be set aside daily for recreation and/or exercise at home. People need to remain physically active while WFH, and carefully monitor themselves for symptoms of loneliness, isolation, stress, or depression that might be a side effect of WFH.²³

In the years and decades ahead, it is inevitable that WFH, or remote work and study will become the norm. This is not just to protect society from infectious disease outbreak. Instead, it is likely to be the natural evolution away from the bricks-and-mortar office or classroom and as a means to improve productivity and flexibility. The rapid advances in digital technology will allow a hybrid arrangement of working at home for some periods of time, and joining colleagues at an office or offsite location for meetings and teamwork. People may only go to the office on certain days of the week (i.e., flex time). However, compulsory WFH due to the sudden lockdown measures in Thailand to contain COVID-19 in 2020 and 2021, have had both positive and negative effects. On the plus side, the lockdowns severely restricted social interaction, and that certainly reduced risk of infection. Workers also experienced savings from reduced cost of commuting to and from the workplace. However, for those without IT equipment, software, internet access, and skills, WFH can adversely affect mental and physical health. Symptoms of WFH may include loneliness, stress, lack of exercise, or lack of a healthy work-life balance. Therefore, the public and private sectors must learn from past experience, and help the new generation of workers and students to be prepared to WFH. This will require enhancements in IT infrastructure, individual skills development, independent time management, and coping with stress to minimize the negative effects of WFH.



Image: [freepik.com/free-photo/asia-businesswoman-wearing-medical-face-mask-using-laptop-talk-colleagues-about-plan-video-call-while-working-from-home-living-room_15114666.htm](https://www.freepik.com/free-photo/asia-businesswoman-wearing-medical-face-mask-using-laptop-talk-colleagues-about-plan-video-call-while-working-from-home-living-room_15114666.htm)

Despite its positive effects, WFH also has potential health implications as well.

Freeing up Marijuana, Cannabis, and Kratom: Conditions and Impact on the Community Economy

“Over the years, marijuana, cannabis (hemp), and kratom have been classified as narcotics. However, during 2020 to 2021, Thais have become more familiar with these three plants for their medicinal properties as well as their economic potential as a cash crop. Advocates have been gradually unlocking the controls on these three plants until the society now views them favorably. Various products or even food and beverages with marijuana are on the market, and this is enabling people to pursue a career in the cultivation of these plants and generate a decent income.”



Image: [freepik.com/free-photo/cannabis-plant](https://www.freepik.com/free-photo/cannabis-plant)
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Cannabis



Image: medthai.com/กัญชา

Hemp



Image: [commons.wikimedia.org/wiki/File:](https://commons.wikimedia.org/wiki/File:Mitragyna_speciosa111.JPG)
Mitragyna_speciosa111.JPG

Kratom

The Narcotics Control Committee issued a draft notification of the Ministry of Public Health (MOPH) regarding Class 5 drugs which would appear to liberalize the use of derivatives of marijuana and cannabis plants in ways that can be exploited without being classified as narcotics. The exception is for the flowers and seeds of cannabis and marijuana. This notification became effective on December 15, 2020. Later, on August 24, 2021, the Narcotics Act No. 8 (B.E. 2564) **announced the removal of “kratom leaves” from the list of illegal narcotic category**, thereby enabling the public to grow and sell them. Next, the Office of the Narcotics Control Board (ONCB) passed a resolution in January 2022 endorsing the draft declaration of the MOPH eliminating marijuana and cannabis from the Class 5 narcotics list. This chapter explains the conditions for freeing cannabis, marijuana, and Kratom from the narcotics law, the remaining restrictions, and potential impacts on the community economy by the liberalization of the use of these plants.

The day when “kratom, cannabis, and marijuana” were no longer branded as narcotics!

For a long time in Thailand, marijuana, cannabis, and kratom have been classified as a Class 5 narcotic under Article 7 of the Narcotics Act, B.E. 2522.¹ In particular, “marijuana” has been classified as a narcotic drug since February 18, 1925² or 96 years ago. As for “kratom,” the Kratom Plant Act was passed in 1943.³ Kratom was forbidden to be consumed, grown, or sold, while cannabis was not named in the law from the beginning. Instead, hemp was regulated as a member of the marijuana plant family, and contains the same narcotic substance.⁴ The narcotic ingredient in cannabis and marijuana is Tetrahydrocannabinol (THC), and the two plants differ only in the amount of THC. Cannabis is low in THC, but during a time when both cannabis and marijuana were considered addictive, they were classified as illegal drugs. Things started to change in 2020–2021, and the Thai public

became more acquainted with these three plants. Experts point to the medicinal properties of these traditional herbs, and others argued that home cultivation of limited quantities of these crops could have economic benefits for farmers.

Gradually, public opinion started to shift, and there was growing support to declassify these plant derivatives as illegal narcotics. The medicinal benefits of marijuana are well-documented, especially properties that affect pain relief. Accordingly, there was an amendment to the 1979 Narcotics Act (Narcotics Act [Nº 7])⁵ which became effective on February 18, 2019 that allowed the use of marijuana, cannabis, and kratom in research studies of their medicinal properties, but still under the monitoring of the Narcotics Control Committee. Nevertheless, this made **Thailand the first country in ASEAN to legalize marijuana for medical and scientific research.**

In the 2019 general elections, the unlocking of marijuana, cannabis, and kratom was a key platform of a prominent policy of the government. Thus, there was an amendment to the Narcotics Act to legalize these plants. With the announcement of the Narcotics Act (Nº 8), B.E. 2564⁶ on May 26, 2021, the kratom plant was removed from the Class 5 narcotics list, effective August 24, 2021. This was in accordance with international principles that do not define kratom as a narcotic, and to be consistent with the context of Thai society in some sub-regions where kratom plants are consumed as a traditional herbal medicine, despite its illegality. Villagers consume kratom leaves by chewing, brewing kratom as a tea, or by other methods. At the same time, there was a MOPH announcement [Nº 424/2564]⁷ which prohibited the use of kratom as an ingredient in food. This meant that there could be no commercial use of kratom because it remained a banned substance under the Food and Drug Act.

As for marijuana and cannabis, on August 24, 2021, the Thai Parliament approved a draft principle on the bill enforcing the Narcotic Code B.E. 2564⁸ which merged laws related to narcotics under a single drug code. This bill was enacted into law on November 8, 2021, and 24 drug-related laws were

repealed on December 9, 2021.⁹ One of the 24 laws that was repealed was the 1979 Narcotic Drugs Act, which defined marijuana, cannabis, and kratom as Class 5 drugs. With the repeal of this law, marijuana, cannabis, and kratom were no longer listed as illegal narcotics.

In the past, regulations related to the prevention, suppression, or control of narcotics have been distributed among many different laws, and the execution of each law was the responsibility of different agencies and organizations. This fragmentation of the drug laws made enforcement inconsistent. In addition, the provisions of the original drug laws were deemed to be not suitable for today's society. The legal solution to this issue was efficiently managed by merging all the drug-related laws into a single "Drug Code," based on the justification to make law enforcement more systematic. However, Parliament also used this opportunity to amend several laws at once, and that led to the quasi-legalization of all three types of plants. Suddenly,



Image: freepik.com/free-photo/cannabis-oil-bottle-arrangement_14493739.htm

Processing cannabis into different products



Image: freepik.com/free-photo/two-cups-hemp-tea-with-hemp-leaves-put-white-marble-floor_11406945.htm

people in Thailand had legal access to these herbal remedies, and the plants could be cultivated legally as cash crops. Clearly there was considerable latent demand for marijuana, cannabis, and kratom in the medical field and cottage industry, presenting an attractive “win-win” solution that could improve treatments and boost the income of local farmers.

Anutin Charnvirakul, Deputy Prime Minister and Minister of Public Health, made the following observations:¹⁰ “As a result of the MOPH’s policies, major hospitals across the country now have marijuana clinics that provide people with a wide range of services. Marijuana plant extracts can be used to heal and/or alleviate sickness/symptoms from various diseases. Currently, the agencies under the MOPH are accelerating research and development to produce herbal products based on marijuana and cannabis to promote the health and relieve suffering of the people. This can now be done legally and openly.”

In the past, agencies within the MOPH, such as the Department of Thai Traditional and Alternative Medicine, the Food and Drug Administration (FDA) and Office of the Permanent Secretary of Ministry of Public Health have advocated for legalization of marijuana and cannabis for medicinal use. The marijuana plant, stems, leaves, roots are no longer considered a dangerous narcotic. Indeed, the **Drug Code**, effective from December 9, 2021, has, in effect, legalized marijuana and cannabis. The MOPH announced further guidance on use of marijuana, stipulating that only marijuana derivatives with THC greater than 0.2% would be considered a narcotic drug. However, if the formulation of THC in oils, extracts, soap products, cosmetics, food supplements have a concentration of THC less than 0.2%, then there is no restriction on use and marketing. This condition was not a standard set by the MOPH or Thailand alone; the World Health Organization had also determined the safety of use of these plants in this way.

In addition, the MOPH will undertake amendments to the legal process to enable farmers to cultivate the marijuana plant as a cash crop. The MOPH has directed the Thai FDA to issue permits for cultivating marijuana plants, and authorize the development of marijuana extracts. The MOPH strategy is to channel these approvals and supplies through the local network of Village Health Volunteers (VHV), and to inform the people in the community that nearly every hospital has a marijuana clinic as part of its Thai traditional medicine service. Marijuana has become the main traditional herbal treatment that people can access through the Universal Health Coverage Scheme (national health insurance, Gold Card, 30-baht scheme), as administered by the National Health Security Office (NHSO).



Image: medcannabis.go.th/artical/manufacture/ผลิตภัณฑ์กัญชาทางการแพทย์แผนปัจจุบันมาตรฐานเมดิคัลเกรด

Medical cannabis products by the Government Pharmaceutical Organization

Even though no longer a banned narcotic, these plants still have restrictions on their use

Currently, marijuana, cannabis, and kratom are no longer prohibited plants under the Narcotic Drugs Act or any drug law for that matter. But the use of all three plants is still subject to ministerial rules and oversight. Some regulations were issued under old announcements that are still in effect until a new ministerial directive comes out to replace them. For example, there is the 2020 MOPH announcement about defining the narcotics in Class 5.¹¹ That announcement asserts that marijuana and cannabis are still controlled substances. For marijuana, the seeds and inflorescences are still considered illegal narcotics under this announcement. However, the leaves, bark, stems, fibres, branches, and roots are not narcotics. Another restriction is that extracts containing CBD and THC must not exceed 0.2% THC by weight.

For cannabis under this notice, inflorescences, cannabis seeds, cannabis seed oil, cannabis seed extracts, bark, stems, fibers, branches, roots, leaves, and CBD-containing extracts must also contain no more than 0.2% THC by weight. Residues or derivatives from extraction shall not contain more than 0.2% THC by weight in order to be exempt from classification as a narcotic. All of these products and derivatives must be licensed for domestic production only, and are prohibited to be imported except for dry bark, dry stem core, and dry fiber.

Piyasiri Wattanawarangkun, Deputy Secretary-General of the ONCB observed that:¹² **Although the new drug code does not include marijuana as a Class 5 drug, marijuana is still listed on the 2020 MOPH announcement titled “Class 5 Drugs 2020.”** That announcement is still in effect. Therefore, the unauthorized cultivation of marijuana is an illegal act. That said, some parts of the marijuana plant,

such as the bark, fibers, leaves which include CBD can be processed, but only with the condition that the ingredients are obtained from a licensed source.

Kratom is currently regarded as completely unlocked, according to the 2021 MOPH announcement titled “Class 5 Narcotics (2nd Edition)”¹³ and effective August 24, 2021. What is more, villagers can grow kratom for household use. However, if kratom is used as an ingredient in food or other consumer products, the producer must obtain permission from the FDA.

At the time of this report, the government was still in the process of drafting the Kratom Plant Act, which would control the sale of kratom leaves.¹⁴ The control measures prohibit use of kratom plant leaves, including extracts from leaves, and kratom tea water by persons under 18 years of age, and pregnant/lactating women. Furthermore, kratom leaves are prohibited for sale in educational institutions, dormitories, parks, zoos, amusement parks or sold through vending machines. It is prohibited to consume kratom leaf solution or kratom tea that is prepared or mixed with narcotics or psychotropic substances.

Impact on the community economy

The Kasikorn Research Center forecasts that the global marijuana market will continue to grow, and reach a valuation of over US\$ 104 billion by 2024.¹⁵ At the time of this report, the world’s largest food and beverage companies are interested in using marijuana extracts as an ingredient in their group of products. As countries around the world continue to liberalize their drug laws, it can be expected that the global marijuana market will continue to grow and diffuse into more businesses.



Image: thaicam.go.th/เยี่ยมชมโรงเรียนการปลูก

A group of people from the Department of Thai Traditional and Alternative Medicine visited a cannabis cultivation greenhouse at Rajamangala University of Technology Phra Nakhon.

In Thailand, **all cultivation, extraction, and production of marijuana and cannabis still requires permission from the FDA. Those qualified for authorized use are the relevant government agencies, higher education institutions, farmers who are part of a registered community enterprise, agricultural cooperatives, medical practitioners, Thai traditional medicine practitioners, and folk healers, among others.** At the community level, a cooperative of seven or more plant-growing enterprises can apply for a marijuana cultivation permit through the office of the provincial governor. The aim of this requirement is to guard against extra-legal use. In addition, the cooperative must have a contract with the Tambon Health Promoting Hospital (THPH) or equivalent government agency. **Households are allowed to plant a maximum of six marijuana plants for personal/household use. Growers can also sell their crop to the local hospital for medical use, as purchased by the Government Pharmaceutical Organization (GPO). The plant flowers can be sold to the branch of the Department of Thai Traditional and Alternative Medicine to make oil from marijuana extract for medicinal purposes, or process parts such as leaves, branches, stems, or roots into products, or use them for cooking.**

Krairat Laokasetwit, President of the Sukrutai Agricultural Safety Community Enterprise, Huai Khot District, Uthai Thani Province, stipulated that¹⁶ a community enterprise which wants to cultivate marijuana plants in a non-toxic way can plant 50 plants in one greenhouse. The crop can be further processed into mixed products such as banana chips, Thai sweet potatoes, Japanese sweet potatoes, popcorn (35 baht/pack), marijuana leaf powder-coated chillies (100 baht/pack), curry paste mixed with marijuana leaf powder (220 baht/kg), marijuana-laced balm (88 baht/piece), hot marijuana tea (100 baht/pack), ready-to-drink marijuana-laced water (35 baht/bottle), marijuana noodles (59 baht/dish), and marijuana side dishes (60 baht/dish). At the time of this report, marijuana drinks are the best-selling item in community enterprises. Thousands of bottles are sold per month, and this can generate over 200,000 baht per month for a single community enterprise group.

In the business sector, the Department of Business Development of the Ministry of Commerce¹⁷ found that, during January-May 2021, more than 80 companies were registered for a marijuana-cannabis business, including planting-processing, production, distribution, import-export, seeds trade, trade in marijuana extracts, marijuana and cannabis plant research, consulting on design/inspection/installation of marijuana plant traceability systems,

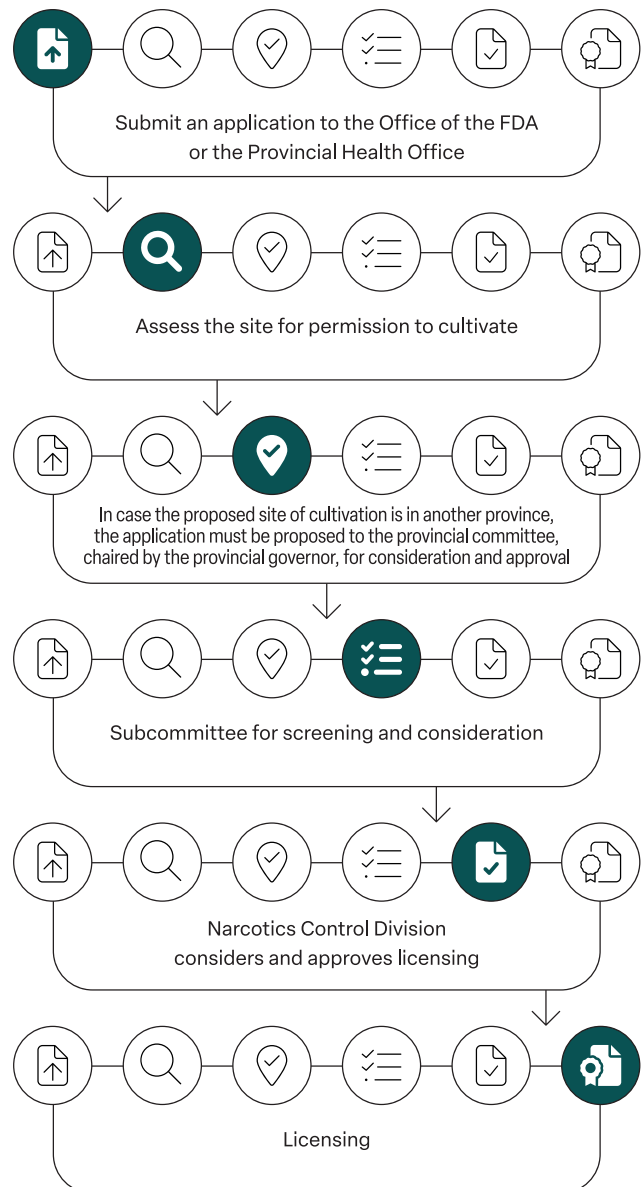
extract production, contract production of cannabis marijuana extract, export and import of cannabis marijuana species, etc. The Department of Intellectual Property reported that, currently, there were 31 entrepreneurs applying for patent registration and minor patents related to marijuana and cannabis, divided into food and beverage products (6 requests), herbal products (4 requests), release of volatile compounds from cannabis (3 requests), machines for marijuana oil extraction for medicinal use (11 requests), equipment or testing kits (3 requests) and home products containing cannabis (2 requests), Two requests were approved for fabric pots and extraction machines for medical purpose.¹⁸

Although the cultivation of marijuana and cannabis can be carried out legally through the incorporation of a community enterprise, there is still a bureaucratic process for obtaining permission that can pose obstacles, such as the lengthy time required to obtain permission, plus the multiple agencies that must sign off. There are two major steps in obtaining approval to grow/process marijuana:¹⁹ **The first step is to apply for registration as a community enterprise.** That includes five sub-procedures, as shown on the left of the figure below. **In the second part of the approval process,** there are six sub-procedures, as shown on the right of the figure below.

Application for registration as a community enterprise



Cannabis cultivation permits



Source: Narcotics Control Division, FDA, MOPH, 2020

Recommendations

Although marijuana and cannabis are legally “unlocked,” in practice, the cultivation of marijuana is still impeded by the bureaucratic requirements and obsolete ministerial announcements. At the time of this report, there were many government agencies involved in marijuana cultivation, including those promoting education, control, and licensing, such as the Thai Traditional Medicine Marijuana and Kratom Management Office, the Marijuana Medical Institute, the Thai FDA, the Provincial Public Health Office, the Narcotics Control Committee, the ONCB, and the Narcotics Suppression Bureau. Each agency has a somewhat overlapping role, and this creates confusion for people, and carries the risk of misinterpretation of the law. These bureaucratic requirements pose considerable obstacles to cultivate marijuana legally in Thailand. Therefore, the government should consider taking the following action to streamline and improve the process to cultivate marijuana and cannabis:

1

Set up a one-stop service center to reduce the process of requesting permission. The center could serve as an education resource to provide knowledge and understanding to the people directly, including occupational promotion and product development.

2

Agencies which currently have a mandate to suppress illegal marijuana cultivation and use should re-direct their resources to improve understanding of the latest laws and regulations government use of these plants. People need to be protected from inaccurate information which could lead to unjust prosecution.

3

Educational institutions should increase health education to enable youth to understand the dangers of all three types of plants in order to prevent extra-legal use and/or damage to their health.

4

The Ministry of Digital Economy and Society should combat fake news that affects public health in regard to the use of all three types of plants.

5

The government should increase its role in public relations and information dissemination through various media, create awareness, and continuously provide the public with accurate information about the uses and effects of the three plants.

Summary

The initial amendments to the Narcotic Drug Act relating to marijuana, cannabis, and kratom had the aim to free up the use of these Class 5 narcotics for clinical and therapeutic research. However, as a consequence of the 2019 general elections, the government has turned to actively promoting marijuana, cannabis, and kratom as cash crops by amending various laws. While new laws have been passed to liberalize the use of these plants, there remain limitations and conditions which impede the cultivation and marketing of products. Of course the government needs to be wary of extra-legal use of these plants and adverse consequences of misuse for the public health. However, given the legalization to-date, the government also has a responsibility to help people in society to live with these three plants and their derivatives in a safe way. The government should avoid letting the issue of legalization become a double-edged sword. Indeed, allowing community enterprises to cultivate these crops could help generate income and revitalize the community economy. To achieve that vision, there is an urgent need to streamline the approval process for cultivation and marketing. The powers in the policy, operations, and law enforcement spheres should integrate, for example, by setting up one-stop service centers to reduce the lengthy time and red tape in obtaining permission and licensing to cultivate marijuana, cannabis, and kratom plants. These centers could also be a source of knowledge and understanding for the public, and provide technical assistance in occupational promotion and product development, among other services.



Exaggerated Food Supplement Ads: How to Fix the Problem?

“ According to the statistics of complaints for the years 2018–2020 of the Thai Foundation for Consumers, it was found that the most complaints among consumers were about false, deceptive, and exaggerated advertising, especially for health food supplements or tonics that claim to be miracle panaceas. ”

Image: unsplash.com/photos/hWzrJsS8gwi

Although online information technology (IT) is advancing at break-neck speed, it is undeniable that television is a medium that is still popular with many people in Thailand, especially the elderly and rural people who may not be able to conveniently access the Internet. From the statistics of complaints during 2018–2020,^{1,2,3} the Foundation for Consumers reported that most complaints were about false advertising, deceit, and exaggeration, especially for health food supplements or tonics that claim to be a cure for a whole host of diseases or conditions. This article is a discussion of the exaggerated or false advertising of health food supplements in Thailand on television and digital TV. Content includes the forms of supplement advertising, the effects of oversight on exaggerated advertising on television, and comments and suggestions for solving problems that arise.

Formats of food supplement advertising on television

A popular form of advertising on television and digital TV is the use of celebrities or famous people as pitch-persons to present products to target consumers. These short programs may include advertising that exaggerates a product's properties. Also, the presenter invariably refers to themselves as a satisfied user of such products, which they claim to have real benefits. For example, there is the case of a famous Thai singer who advertised

a multi-vitamin Cordyceps product and dietary supplement, with Cordyceps extract mixed with UC-Two (Livnest trademark). The speaker states that the product helps with sleep, appetite, and rejuvenation of the body.^{4,5} In addition, another form of advertising uses ordinary people to pitch a product by talking about its properties that help cure diseases, and reduce symptoms of various illnesses such as high blood pressure, diabetes, pain in bones and joints, etc.⁶ The use of general public advertising is a strategy to make the audience feel more accessible to and familiar with the product.

Even though there are highly publicized cases of false or exaggerated advertising, this strategy continues to persist by walking a fine line between hyperbole and plausible testimonials from trustworthy individuals. Another factor is that this approach cleverly exploits people's 'anxieties' and 'needs.' Viewers often have a nagging physical ailment or chronic disease, and they want to avoid having to take medicine for the rest of their life. At the same time, people may want to get ahead of others by being the first in their social group to use a product. A large proportion of the exaggerated advertising in Thailand targets women, with promises of appearing more attractive or younger in a short period of time. The definition of beauty in each era will be different and, at present, the word 'pretty' can refer to a person with a good figure and lighter skin tone. Thus, many dietary supplements focus on weight loss, a slim figure, and white skin.

In addition to the consumer demand side, the broadcasters themselves are in increasingly tight competition given the proliferation of digital TV, and other video media channels for promoting products. Thus, companies may “push the envelope” in advertising in order to gain a slight edge over the competition. This can easily drift from exaggeration of the product’s properties to false advertising. Advertising on TV is also being diffused across a wider variety of channels. An analysis of the Digital Watch TV website⁷ found that, since 2014, various digital TV channels (with both small and large audiences) had a large proportion of home shopping programs and products for sale. The main reason for this is ‘earnings,’ with each channel allocating a different time and length of presentation, from spots to durations of 5, 15, 20, and 30 minutes, just to market products.

Advertising exaggerates the potential benefit for consumers

When consumers are exposed to such a continuous barrage of advertisements, they can become obsessed with exaggerated claims, eventually wearing down their reluctance or skepticism, and finally deciding to make the purchase of a dietary supplement or other cure-all. When consumers with genuine chronic conditions or ailments turn to these bogus panaceas, they may actually worsen their condition by neglecting to see a qualified clinician or from the deleterious effects of the supplements or tonics. For example, a number of doctors and pharmacists have warned about the impact of over consumption of Cordyceps in straining kidney function and actually increase the risk of kidney failure.⁸

The disclosure of such information is important to inform consumers about dangers which the advertisers may gloss over or neglect to mention. However, the dangers, such as with overconsumption of Cordyceps, also raise questions about the overall credibility of advertisements on TV and other media. Thus, there has been an increase in the critical review of content and scrutiny in issuing or renewing advertising licenses for

such products. There are even cases of litigation for false advertising. For example, there was the case of a brand of Cordyceps products and was actually found guilty of deceiving the public, resulting in a prison sentence and fine. The conviction was attained because the advertisement positioned Cordyceps as a proven “drug,” and was advertised without proper review and permission from the Thai Food and Drug Administration (FDA). This resulted in two-year imprisonment and a fine of 50,000 baht.⁹

The National Broadcasting and Telecommunication Commission (NBTC) as the agency directly involved in oversight of TV, investigated cases of exaggerated, deceptive, or false advertising, and punished two satellite television channels as an example by charging a fine of 500,000 baht, and issued warnings for ten other channels and 150 radio stations that were crossing the line on hyperbolic advertisements for consumer products. The FDA can use its legal power to order the suspension of certain advertisements¹⁰ and can take action to remove such products from many television stations. Some stations try to get around these bans by modifying the ad content to be more accurate, or at least less deceptive.

The problem of oversight of advertising

The successful prosecution of the promotion of the Cordyceps products was actually the first case in awarding a judgment against exaggerated, deceptive, or false advertising. It was the first time that there was punishment for both product owners and a television station. It is also an event that attracted widespread public attention, and probably helped alert the consumer public to be more skeptical of these exaggerated advertising campaigns. Still, the fact that these deceptive practices occur daily on ordinary TV channels tends to normalize the practice in the public eye. So the larger question is why is that practice allowed to continue?

If you try to analyze the case of Cordyceps, you will find that the problem is not the adequacy of the law. Instead, it is an issue of rigor in law enforcement. That said, efficient enforcement also requires synchronization and collaboration of government agencies. In order to advertise through television or other media in Thailand, it is necessary to obtain permission from the FDA (i.e., an ‘ad license number’) to verify that the ad is not illegal, and there are no deceptive or exaggerated promotional messages. However, **some companies try to get around this by not asking for permission to advertise.** The leads to the next question **whether digital TV channels are being adequately inspected to verify that the producers of products promoted on their broadcasts have valid ad licenses. Even when there is an ad license, it is imperative to verify that the content of the ad on TV broadcasts is in line with the content that was approved by the FDA.**

In the first instance, if unauthorized advertising is found, especially, if it is an exaggerated, illegal advertisement of a food supplement or tonic that could harm the health of the consumer, the FDA has to urgently take action against advertisers and owners of such products to the full extent of the law. At the same time, the NBTC, as the



Image: bcp.nbtct.go.th/th/detail/2021-01-21-09-33-59

A press conference on the regulation of exaggerated advertisement, with reference to cases of cordyceps supplements, on January 20, 2021 at a conference hall of NBTC

regulatory body that controls digital TV channels, has to verify the ad license number every time before authorizing the broadcasting of those advertisements. When an advertisement via digital TV channels is found to be exaggerated, the NBTC has to punish the host channels to the full extent of the law in order to be consistent with the FDA actions and policy.

However, there has to be a shared database between, say, the FDA and NBTC in order to speed up the verification process of both the presence of an ad license, and that the advertised content on air is in line with the approved content. This is an area which civil society and other consumer protection groups want more involvement. They would like access to the relevant databases so they can help monitor what is being advertised, and be able to identify when ads cross the line into false or deceptive practices. Currently, the FDA only shares the ad license number and name of the licensee; that does not allow outside groups to verify that the broadcast ads are in line with the approved content. At the very least, the FDA should share this information with the other government regulators such as the NBTC to spread the workload among as many entities as possible, including civil society.

Regulators and duties

There are three main agencies that play a role in overseeing television media.

- 1 | Complaint and Enforcement Management Center, FDA
- 2 | Consumer Protection Police Division
- 3 | Telecommunications Consumer Protection Bureau, NBTC

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1

The FDA's Complaint and Enforcement Management Center

The Complaint and Enforcement Management Center was established to deal directly with complaints specific to health products. The emphasis is on proactive work, but the Center has no power to take punitive action. When a complaint is received, the Center will investigate to corroborate the charges, and record all the essential information about the company which produces the product, the advertiser, the ad license, and the approved content. If there appears to be a violation, then the Center sends a letter to the offender(s) ordering the suspension of the advertisement, with a copy to the FDA office responsible for licensing. If the offense is not rectified in a timely way, the FDA can forward the issue for prosecution. As for the prosecution with imprisonment, the matter will be forwarded to the Consumer Protection Police Division to pursue the case, which may take days or weeks for action.¹¹ However, at the same time, the FDA may request cooperation from online platforms such as Lazada, Shopee, or Facebook (as well as other broadcasters) to suspend or remove illegal information from their websites. That approach may lead to quicker action than pursuing a criminal case. At present, the statutory penalties relating to health products are too small compared to the potential profits from duping the consumer public. What is more, the related law is rather obsolete, i.e., the Food Act, B.E. 2522, with penalties under Article 71 imposing fine of not more than 5,000 baht.¹²



Image: bangkokbiznews.com/tech/918323

NBTC joins forces with FDA in prosecuting exaggerated advertisement of cordyceps and false medicinal claims about them.

2

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Consumer Protection Police Division, Sub-division 4

This is the main agency responsible for overseeing and enforcing food and drug laws. This Division can receive complaints about advertising of health products. Its authority has real teeth, in that, unlike the FDA, the Division can fine and imprison offenders. Thus, the FDA and other consumer agencies or groups have to refer alleged violators to this Division for legal action. After receiving complaints about health product advertising from the FDA, the Division will investigate the matter and consider the weight of the evidence. If there is sufficient evidence of a violation, the matter is referred to the prosecutor to pursue a legal case. Next, a summons is issued for the offender, and fines are applied as prescribed by law.¹³ If a summons is issued, and the offender does not turn himself in, the police will collect evidence and file a lawsuit before the court for an arrest warrant. Average processing time of cases varies, but may take approximately two months. Provisions under the Computer-Related Crime Act, B.E. 2560 may also become involved, and that can delay the case further.



image: bcp.nbtc.go.th/th/detail/2017-01-24-14-44-30

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Telecommunications Consumer Protection Bureau of the NBTC

NBTC is involved in solving the problems according to the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 which stipulates that, in the event that the broadcast television or telecommunications business, takes any action that is likely to negatively exploit consumers by relying on the use of networks or advertising in a manner that is unreasonably profitable or causing nuisance by any means in accordance with the rules prescribed by the NBTC, the NBTC shall have the power to order the suspension of such proceedings, and has the power to levy an administrative fine not exceeding 5 million baht, and additional fine not exceeding 100,000 baht per day throughout the time the order has not yet been complied with.¹⁴

From the MOU between the NBTC with the FDA and three other agencies (Office of the Consumer Protection Board, the Royal Thai Police, and the Ministry of Digital Economy and Society), joint actions will be taken to investigate the illegal content of broadcasting on digital terrestrial television, satellite television, cable TV, and radio, both nationally and provincially. This MOU functions as a passive complaint-response mechanism, as well as a proactive process by monitoring program broadcasts or advertisements. Where necessary, legal action is taken in accordance with the administrative process. In determining whether the advertisement is exploitative of the consumer public, the burden is on the broadcaster, advertiser, and company which produces the product to prove that their promotional messages and strategies are not exploitative.¹⁵

An example of a media that the Consumer Protection Bureau in the Broadcasting and Television Business of the NBTC has prepared to alert the public to be wary of exaggerated advertising.

Opinions and Recommendations

To address the problem of exaggerated health product advertising, stakeholders, including the government sector regulators and civil society, should consider ways to improve the advertising law, rules, and enforcement as follows:

- 1**
Relevant government agencies should design and improve operational procedures both within and between the organizations, by first reducing unnecessary steps and duplication, and increase the use of technology to coordinate and manage problems so that the control operations can be carried out more efficiently and systematically.
- 2**
Regulators with the power to punish offenders who exaggerate health product benefits through various channels, including social media, should apply a variety of sanctions to deter recidivism.
- 3**
In the event that illegal advertising is found, the FDA should announce it publicly to consumers, and post an announcement to online platforms where consumers can easily see it. At the same time, the FDA must work with relevant agencies to remove the product from the market within 24 hours from the date of the announcement of the ruling by the FDA. The information of these actions must be made widely available to the consumer public, and be concise and to-the-point.
- 4**
As for the issue of technology adoption in the consumer protection process, the Ministry of the Digital Economy and Society should play a role in creating innovations for consumer protection in various fields, and help enhance the efficiency of government operations through linking information across many agencies with digital technology, in accordance with the Ministry's mission.
- 5**
Regulatory agencies responsible for laws relating to health product advertising, such as the FDA, Ministry of the Digital Economy and Society, and the NBTC, should consider improving the laws, both in terms of penalties and the roles and powers of the agencies to be commensurate with the current situation, and improve the law to reduce unnecessary steps, or assign a dedicated unit that can handle the problem until the process is complete. This may help improve efficiency of adjudicating cases of exploitation of the consumer public.
- 6**
Influencer agencies should also exercise professional self-regulation. That is because there are many famous people who unwittingly become accomplices of unscrupulous companies and advertisers. Thus, these influencers and spokespeople should be encouraged to practice more due diligence in deciding whether to endorse a product, especially as a pitch-persons on TV or social media. All the people involved should exercise more self-restraint and policing themselves by ridding their organization of offenders.

Summary

Exaggerated advertising through free television, cable, and digital TV is a big problem in Thailand that affects many consumers, especially the elderly and villagers in rural areas. The more that IT continues to evolve and advance, the problem of product exaggeration is also likely to increase. It is therefore a challenge for regulators to revise the laws, rules and regulations—while rigorously enforcing those that exist—to keep up with various problems in this sphere. However, the use of state power and legal sanctions alone cannot solve the problem of exaggerated health product advertising. Eradicating these exploitative practices requires cooperation from the business sector and the public, as well including access to advertising authorization database and FDA-approved content so that consumers can have accurate information and make informed judgments of whether the claims of the benefits of a product are genuine or bogus.



Image: unsplash.com/photos/t8l3uuG8rZl

4 / 10 Outstanding Health Situations

Migrant Workers in the Era of COVID-19: Bridging the Divide to Meet the Challenge

“ During the COVID-19 epidemic, Thailand treated Thais and foreigners differently. This action eventually threatened the health of Thai people because the virus does not discriminate by nationality or ethnicity. COVID-19 is an ‘equal opportunity’ disease. ”

Over the past several decades, the Thai government policy regarding foreign migrant workers (MW) has been shaped by “subtle discrimination” to segregate these lower-income laborers from the mainstream population. However, with the advent of COVID-19, the idea that Thais can be treated differently from non-Thais is less persuasive, since COVID-19 spreads just as easily across as within nationalities and ethnicities. Everyone in the country has to be treated equally. In other words, the only effective prevention and containment measures must bridge the divide among all segments of the population.

This article reviews the history of segregation between Thais and foreigners. Next, the article reviews the health effects of this concept of separation from different perspectives. The author includes case studies of community management in Nakhon Pathom and Samut Sakhon that overcame segregationist tendencies in order to successfully respond to the threat of COVID-19. The lessons from the case studies should serve as a guide to the management of public health in a more pluralistic Thai society in the years and decades ahead.

The importance of migrant labor, past to present: Without “them,” there would be no “us”

In the distant past, labor was a valuable asset to a city-state. Often, wars were fought in order to expand the territory and to increase the number of people who were ruled. The victors in these wars among city-states would coerce the people from the defeated lands to serve in their military and economic projects. The chronicles of the major kingdoms of Southeast Asia have always documented the deportation of prisoners of war from the defeated states, and how the victors would import the working-age population to serve

the aims of the victor nation, and even force them into military service. The Luang Prasert edition of the Thai Royal Chronicle recorded the forced recruitment of citizens from the Khmer Empire by the Ayutthaya Army to serve the Royal Army in Pathai Khasem Subdistrict. **In B.E. 1987, 120,000 Khmer captives were inducted into the Royal Army.**^{1,2} Testimonies of these wartime practices appear in both Khmer and Ayutthaya annals. Indeed, the cities of Phra Nakhon Luang (or Yasothonpura), Angkor Thom, and Siem Reap were abandoned for a long time due to the forced expatriation of members of the royal family, nobles, philosophers, sages, Brahmins, and the general population, including the plundering of wealth and artworks.³ The intellectuals that were brought back to Ayutthaya actually contributed their knowledge of governance and literature to their captors and, in that way, helped accelerate the prosperity of Ayutthaya in subsequent decades.

At the same time, other kingdoms also presided over the citizens of Ayutthaya when they won the war. The Burmese Chronicle of the Great Royal Family, Hor Kaew edition, recorded that **“... we conquered 106,100 soldiers of Ayutthaya, and handed them over to the generals of Rattana-bura Angwa and then graciously allowed the royal family of King Krungsri Ayutthaya to build a palace to live in. The general population of subjects were also allowed to establish settlements, and they were left in peace ...”** As a result of this takeover, Angwa absorbed competent officials and the arts and culture of Ayutthaya to be part of their own kingdom, which subsequently created music, architecture, and the high art of Burma, which has survived up until the present day.^{4,5,6}

The historical record indicates that labor was the city-state's most valuable asset. This may have been one of the principal motivations to invade neighboring kingdoms or fiefdoms, i.e., in order to conscript the working-age population into the military or economic projects of the conqueror. However, this was not done indiscriminately. The victors recognized the value of the technicians and artisans of the defeated nation-state, and assigned them to carry on their functions as they had before the war—except, this time, in service to the victors. If the foreigner was knowledgeable, they were actually allowed to advance to a high position in the host nation's hierarchy. Other foreigners migrated voluntarily to these enlarged city-states and kingdoms as they prospered. In the Ayutthaya and Rattanakosin Eras, there were many foreign nobles in historic Siam, such as Chao Phraya Wichayen (Constantine Falcon) during the reign of King Narai the Great; and Chao Phraya Bowon Ratchanayok (Chak Ahmad Kummi) during the reign of King Songtham. In addition, there were foreign nobles,

civilians, and military lawyers in the Rattanakosin Era as well. There were many foreign nobles who served at a high level, such as Phraya Jeng Raman who migrated to Siam in the Thonburi era, and was graciously awarded the status of Phraya Maha Yotha during the reign of King Rama I. The Belgian General Adviser, Gustave Rolin-Jaequemyns held the rank of Chao Phraya Abhai Raja in the reign of King Rama V. Phraya Kalayanamaitri (Dr. Francis B. Sayre), was a US foreign affairs adviser, during the reign of King Rama VI and King Rama VII, among many other examples. In the Ayutthaya, Thonburi, and Rattanakosin periods, the migration of people from other territories into Siam was done freely. However, things began to change when Siam passed the Immigration Act B.E. 2470 when the country became more restrictive of who could enter and settle in the Kingdom. Nevertheless, it is clear that, in past centuries, the Kingdom that is now Thailand thrived and prospered based on multiculturalism, and welcomed diverse ethnicity, religion, and culture.

Migrant workers in the context of the modern state

When a fully developed modern state forms its borders, it needs to know the size and composition of the population in its domain, and establish an organized system of sovereignty to rule over various territories and their peoples. However, this attempt to enumerate and classify the population inevitably led to divisions and partitions. These separations are reflected in the bureaucratic, legal, and educational systems of today. Thailand is a signatory to a number of international agreements, certifying the rights of migrant workers living and working in Thailand, such as the International Labor Convention on Discrimination in Employment and Occupation (1958), the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights (1966), the International Labor Convention N^o 155 on Occupational Safety and Health, and the 1981 International Labor Convention N^o 184 on Safety and Health in Agriculture, among others. However, in practice, Thai legislation has also been enacted to limit the rights of non-Thais that would seem to contravene international principles. The rights of migrant workers are dependent on the policies of each state, such as limiting the occupational options for migrant workers from Myanmar, Cambodia, Laos, and Vietnam. As a result, some migrant workers are unable to access health insurance due to lack of employer participation in Social Security, or the required personal identification documents to access other rights. Thailand has also refused to recognize some international labor conventions

in order to avoid the cost and inconvenience of protecting rights of migrant workers and their accompanying dependents (e.g., the International Labor Convention N° 87 on Freedom of Association and Protection of the Right to Organize, N° 98 on the Right to Unite and Collective Bargaining, and N° 189 on Decent Work for Domestic Workers to Promote the Rights of Domestic Workers).⁷

In addition to the legal and bureaucratic systems which manifest the concept of divisions, Thailand also extends this discrimination to the education system. The content of the state compulsory curriculum at every level focuses on nationalism and heroism of Thailand in various wars and historical conflicts with neighboring countries. This can foment mutual resentment and prejudice among nations in the sub-region. The aforementioned forms of social cleaving are systematic and long-lasting. This can result in the attitudes and perceptions of people in society that clearly view the migrant workers as “them”, and Thais as “us.” In that way, disdain and exploitation of migrant workers has become the norm in mainstream Thai society.

Migrant workers in the context of the Thai COVID-19 epidemic

Although the Thai state has segregated views on what protections migrant workers are entitled to, the public health realm may be leading the way to a more enlightened view of diversity and equality of the population of all backgrounds. This perspective has led to the expansion of the health insurance system which is now covering most of migrant workers in the country. Currently, health services for migrant workers in Thailand come from two budget sources:

1

Budget of the Alien and Foreign Workers Health Insurance Fund under the Health Insurance System for Foreigners. This is managed by the Division of Health Economics and Health Security of the Ministry of Public Health (MOPH), and the Social Security Office of the Ministry of Labor.

2

Budget under the National Strategic Plan on Public Health, Ministry of Public Health, such as the earmarked budget, national action plans, special health zones, border health initiative, budget for the Migrant Worker Health and Integrated Trafficking in Persons Project (2019), and budget to support the development of the foreigner health service system (2019), among others.

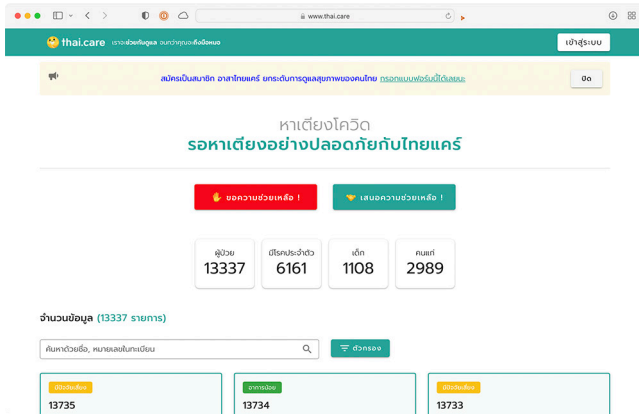
However, some migrant workers do not have access to the national health insurance system because they have not purchased the health insurance card and have to pay for health treatment. Reasons for this inaccessibility may be illegal entry, being undocumented and lack of knowledge regarding application for the health insurance card and its benefits. Those migrant workers have to pay out-of-pocket for health care.⁸ Therefore, the development of a health system that covers all migrant worker groups and their dependents in Thailand remains a challenge for the national health system.

The sudden advent of the global COVID-19 pandemic has affected nearly every country in the world, including Thailand. Among countries, Thailand initially took the harsh control and containment measures of closing the country to non-essential travel, issuing curfews and travel restrictions, closing entertainment establishments, and ordering lockdowns whenever outbreaks of COVID were detected. At the same time, the government ramped up its procurement of vaccines. Still, COVID rapidly became a major public health crisis. **Such crisis heightened xenophobic tendencies in most societies around the world, and Thailand was no exception.** Initially, the Thai government had a clear policy aimed at helping Thai citizens, but the measures excluded foreigners in terms of subsidized medical care and other humanitarian assistance. Also, it was easy for many in Thai society to reactively blame migrant workers for bringing COVID into the country and causing outbreaks. In addition, migrant worker smuggling and the on-going political strife in Myanmar led to more refugees and migrant workers fleeing war for the jobs and peace in Thailand. Inaccessibility of vaccines and health services among migrant workers in the early periods of



Image: lamphuncity.go.th/46577

Proactive service for screening for Covid-19 for migrant workers in Lamphun Province



The ThaiCare website (www.thai.care) is a tool to help refer people who have Covid-19 to the next level of care, either by finding a hospital bed or referring for home isolation.

the COVID-19 epidemic resulted in COVID-19 clusters in areas with high density of migrant workers in Samut Sakhon, Rayong, Chonburi, markets and construction sites. These seeded outbreaks in many other provinces through domestic transmission.

Infection in the first wave subsided in 2020 and Thailand allowed some relaxation measures. Unfortunately, the government failed to take action to prevent the next waves. Local management seemed ineffective while agencies worked in different directions. The 2nd and 3rd waves brought the rapid infection spread nationwide and in migrant communities. The country's public health system encountered the bottleneck, leading to the establishment of field hospitals.

Since the 2nd and 3rd waves, there were several COVID-19 clusters among migrant workers as they were not vaccinated and able to access health services. However, the MOPH quickly recognized the futility of only vaccinating a portion of the population in an epidemic, and called for universal access to vaccination, regardless of nationality.

With regard to serving the migrant worker community, programs in Nakhon Pathom and Samut Sakhon Provinces are models of community-led response (referred to as the “ThaiCare” model). These provinces had large concentrations of migrant workers, and took the initial step of reducing restrictions or segregation based on nationality. The ThaiCare model is a collaboration of various agencies and organizations in the affected migrant worker communities. The following summarizes highlights of the ThaiCare approach:

1

Development of the ThaiCare model as a standard approach

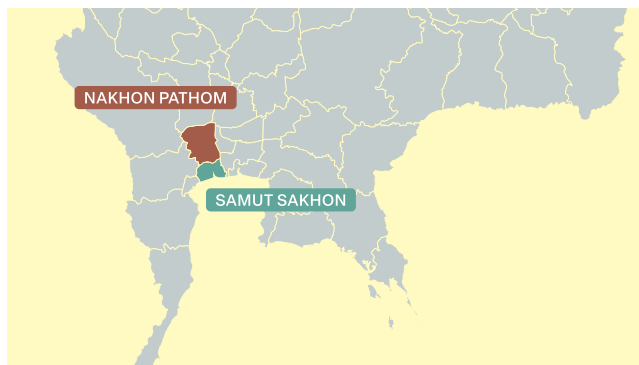
The concentration of migrant workers in dense, congested communities introduces limitations to disease control, and the traditional Thai public health teams could not easily penetrate these communities in enough time to prevent outbreaks. Therefore, the provincial health authorities decided to improve the monitoring and surveillance system to nip outbreaks in the bud, as well as conduct rapid referral of COVID cases for immediate treatment and/or quarantine. For this reason, the National Health Commission (NHC) joined forces with the Information and Communication Technology Center, Office of the Permanent Secretary of Ministry of Public Health, the Digital Economy Promotion Agency, and the Bundit Center Co., Ltd. to develop an information system called “ThaiCare”. This system integrates patient information while tracking outbreaks and control measures. The system is based on two key principles: Protecting the personal data of the patient and their family, and empowering individuals and communities to manage prevention and care by themselves.

By using this system, patients (or their relatives) must enter personal information such as name, age, health insurance coverage, etc. The need for care can be divided into at-home care and hospital care. Patients can also fill in the need for any additional assistance, such as medicine, food, or supplies. The care needed and contact information can be accessed by community officials (with database encryption) without actually going to the patient's location. Patients who home-isolate or are cared for at home may ask to remain there unless their condition worsens. That helps to spare hospital beds for the critically-ill patients. In addition, the system produces real-time information to enable timely case management decisions. The ThaiCare system can be used for both Thais and foreigners.⁹

2

Communities in Nakhon Pathom¹⁰

Nakhon Pathom has a large number of migrant workers due to the large number of industrial plants and livestock operations in the area. When COVID started to make inroads in Nakhon Pathom, the provincial health authorities conceived an approach for care and containment that would be suitable for Thais and foreigners alike. Their approach involved the collaboration of local administrative organizations (LAO), health service providers, and the civil society network, which consist of volunteers and members of religious groups. Each side acts according to their own potential, and all three coordinate to create a comprehensive referral system for COVID patients in the province. The LAO are responsible for formulating policies for managing the overall system. Healthcare providers mobilize staff from the district and community levels, while local leaders (Kamnan, village headman, etc.) look after the welfare and well-being of the infected and contacts in the community who need to self-isolate. The ThaiCare volunteers and members of religious groups help deliver food, medicine, and supplies for daily living. Local educational institutions help support the work of the ThaiCare team by sharing facilities and personnel.¹¹ In addition, civil society has also established the **“Breath Fund to Help COVID Patients”** as a central agency to accept donations of cash, basic household goods, and essential medical equipment. This group also serves as a coordinating center for volunteers in the province. In addition, information technology is also used to manage the system. The ThaiCare system can be used to track the number of patients who are isolating at home through the ThaiCare website. This allows all parties to know how many patients are still waiting for a hospital bed, if needed, how severe the symptoms are, and which patients need special help. The ThaiCare information system is considered to be a database of the people that augments the government system as well.



3

Communities in Samut Sakhon

Samut Sakhon Province is an industrial and fishing town. Local Thai residents and workers account for 500,000 persons, while there are at least 200,000 registered migrant workers. Due to multiple waves of infection, lockdowns and vaccination took place until the situation improved. The rapid spread of Delta variant in 2021 became nearly uncontrollable with more than 1,000 new cases daily. This outbreak was enough to cause the province to re-think their prevention and control strategy. In July 2021, the governor of Samut Sakhon Province issued a directive that required factories or establishments with 50 employees or machines of 50 horse power or more to establish a field hospital on their premises in order to quarantine the infected (Factory Accommodation Isolation, or FAI). FAI standards call for having enough beds to accommodate at least 10% of the total labor force in a worksite within 7 days. Failing to do so would result in a **close of operation**.

The FAI strategy was meant to reduce the burden on the regular health care system in the province, especially given the total of over 6,000 factories there. If done properly, the FAI strategy could create 60,000 beds to accommodate COVID cases in the event of uncontrolled spread. The asymptomatic cases were instructed to self-care and self-isolate in their homes or lodging. The province sent medicine and food to each factory, but the factory was responsible for the cost of caring for the infected workforce. This greatly reduced the burden on the local hospitals, which could then devote their resources to caring for the critically ill patients. Another advantage of FAI is to protect the business sector so that it can continue to operate, even if part of the workforce comes down with COVID. The isolation guidelines help reduce the risk of secondary outbreaks among contacts of index cases and the public at large. At the same time, the governor issued an order to establish a field hospital or Community Isolation (CI) center, to help care for patients who do not require intensive care, and avert burdening the district and provincial hospitals. Thus, the overall approach in Samut Sakhon is a form of collaboration between the public and private sectors in managing a public health crisis. Many provinces have adopted the Samut Sakhon model to manage the spread of COVID-19 in their own locations.^{12,13}



Image: covid.nakhonpathom.go.th/news/detail/85

Officials inspected establishments in Nakorn Pathom Province and screened migrant workers from Myanmar.



Image: mol.go.th/news/ผช-รมว-แรงงาน-ลงพื้นที่-จ-สมุทรสาคร-มอสิ่งของบรรเทาทุกข์แรงงานต่างด้าว

Officials visited the area to screen migrant workers at a worksite in Nonthaburi Province.



Image: mol.go.th/news/ผช-รมว-แรงงาน-ลงพื้นที่-จ-สมุทรสาคร-มอสิ่งของบรรเทาทุกข์แรงงานต่างด้าว

Migrant workers who are impacted by the Covid-19 outbreak at Shrimp Market in Samut Sakorn Province

Summary

Trying to solve such a challenging health problem as the COVID pandemic requires a holistic view and refraining from the knee-jerk reaction to blame and “segregate people” by nationality or ethnicity. The experience in the field argues strongly that the most effective response to an epidemic is to implement a system that takes care of all groups of people, through a collaborative, multi-sector effort. Historically, Siamese Kingdoms actually valued a diverse society of people from many backgrounds, ethnicities, religions, and cultures. This was one of the ways the country learned and prospered. In the present day, the Thai government should have a clear policy on MW in terms of labor protections and health insurance, so that these amenities are accessible, universal, and equal for all people in society, including migrant workers and their accompanying dependents, since there will surely be more such crises in the future.

Ming Dih Factory Explosion: Lessons From a Chemical Factory Disaster

“ The explosion at the factory of Ming Dih Co., Ltd. caused massive damage to state, private, and public properties. It also created extensive environmental impacts. A large cloud of black smoke covered the entire area, and could be seen dozens of kilometers away. ”

On July 5, 2021, there was a serious explosion and fire in the factory of Ming Dih Chemical Co.,Ltd. A cloud of black smoke drifted dozens of kilometers away. Houses and cars were damaged. One person died, and at least 15 people were injured. There were 1,266 people registering for complaints. The initial damage was estimated at 3–4 billion baht. Such accidents are not new. In the past, Thailand has experienced many chemical accidents, such as the 1991 explosion and fire at a hazardous materials warehouse in Klong Toey Port of Bangkok. At least 6,000 people were affected and 30 people died. In 2012, there was a chemical tank explosion in the Map Ta Phut Industrial Estate, which injured at least 1,200 people, and killed 11 workers instantly.

This article analyzes the Ming Dih factory explosion, its causes and effects on life, property, and surrounding communities. This includes a brief review of disaster mitigation and chemical hazard management in Thailand from past to present, and concludes with recommendations for measures and policies in solving and preventing related problems.



Image: doodarathai.com/instant/11927

Causes and impacts of the Ming Dih factory explosion

On July 5, 2021, around 2:50 a.m., there was a severe explosion and fire in the factory of Ming Dih Chemical Co., Ltd. in Soi King Kaew 21, Racha Thewa Subdistrict, Bang Phli District, Samut Prakan. This is an EPS (Expandable Polystyrene) resin factory that uses a lot of chemicals in the production process, such as styrene monomer and pentane, etc.^{1,2} (At the time of the accident, there were more than 1,600 tons of styrene left in a 2,000-ton tank,³ in addition to a number of other chemicals of unknown properties and quantity. In addition, 20 tons of coal residue were found inside the factory.)⁴

After the explosion, related agencies such as the Department of Disaster Prevention and Mitigation, together with the Bang Phli District Office, issued an urgent evacuation notice for people within a radius of five kilometers from the factory.^{5,6} The Department of Health issued a warning to people in the area to wear masks to prevent inhaling the smoke and pollutants from the factory.⁷ The Pollution Control Department explained through the media that the chemical that burned was styrene (a precursor used to produce foam)⁸ Shortly after the explosion, the Air Quality and Noise Management Bureau of the Pollution Control Department measured the concentration of styrene in the blast area and found that, within a radius of one kilometer, the concentration of styrene exceeded the allowable limit, with risk of acute inhalation exposure.^{9,10} In addition, civil society played an active role in helping affected people such as e.g., the ENLAWTHAI Foundation and the Foundation for Consumers.¹¹

From the examination by experts and related agencies, the possible causes of the explosion were posited as follows:

1

A continuous exothermic reaction among the chemicals became uncontrollable (uncontrolled polymerization) and released a large amount of styrene gas inside the reaction tank; the pressure in the reaction tank climbed so high that it ruptured the containment disk, releasing gas into the atmosphere¹²

2

Any leaks in the pipes or valves that transport the styrene monomer to the reaction tank would cause a large amount to accumulate in the manufacturing process where the reaction tank is located, leading to combustible styrene monomer gas forming^{13,14}

3

Pentane gas may have leaked from pipelines or inlet valves to storage or production areas, creating a combustible combination of gases.¹⁵

The explosion at the Ming Dih factory caused extensive damage to state, private, and public properties. It also created a wide environmental impact due to the burning of toxic chemicals and materials. Immediately in the aftermath of the explosion, a large cloud of black smoke covered the entire area, and could be seen dozens of kilometers away. At least 70 houses and 15 cars were damaged, one person died, and at least 15 people were severely injured, including five volunteers.¹⁶ A factory building nearby was also heavily damaged by the explosion. Regarding compensation for damages, the Racha Thewa Subdistrict Administrative Organization opened registration for affected people to file a grievance during July 12–14, 2021, with a maximum amount of compensation not exceeding 49,500 baht per person. A total of 1,266 people registered, totaling 423 million baht worth of claims.¹⁷



Image: posttoday.com/social/local/657229



Image: doodarathai.com/instant/11927



Image: posttoday.com/social/local/657229

On damage and impacts on people and the environment, Sombat Hesakul, an independent academic in economics, assessed the damage according to economic principles, and advised that the government should impose some sort of penalty on the polluter in proportion to the scope of the damaged area and related factors. For example, the measurable damage value was estimated to be approximately 3–4 billion baht, as well as the potential damage in the future such as chronic illnesses of the exposed people, among other long-term effects, which was estimated to be approximately 5–6 billion baht.¹⁸ In addition, the incident also had an impact on investment and economic development at the local level. For example, real estate in the area surrounding the Ming Dih factory depreciated by an estimated five percent.^{19,20}

The explosion at the Ming Dih factory reflected the unpreparedness of state disaster relief, and the inefficiency of the relevant agencies in the management of chemical disasters. The main reason for unpreparedness is the lack of information on the types and quantities of chemicals that cause fires. However, Thailand does not have a law requiring the development of a central chemical database covering the volume of storage, use, production, release, and movement of various chemicals. There was also a lack of a mechanism to disseminate such information

via an online system that could be easily and quickly accessed by everyone. Such databases are important to help agencies and personnel dealing with emergency disasters to access and use the information for planning and to respond to the situation promptly, accurately, and safely. The lack of information is a major barrier and hazard for firefighters and disaster relief workers. They need to have protections against chemical fire, and proper chemical fire extinguishing equipment. The lack of such readiness and lack of information has resulted in needless injury and death to the volunteers.

Dangers of industrial chemicals in Thailand, past to present, and lessons from the Ming Dih disaster

Thailand has experienced several chemical accidents in the past, and at least two of them caused severe damage and widespread impact, such as the 1991 explosion in a hazardous materials warehouse at Bangkok's Klong Toey Port, whose fire lasted for almost a week before it could be extinguished. That disaster caused widespread damage, with 30 fatalities and more than 6,000 people affected. Over 600 homes and structures were damaged, valued at more than 100 million baht.²¹ There was the case of a chemical tank explosion at the factory of BST Elastomers in the Map Ta Phut industrial estate in 2012. In that disaster, at least 1,200 were injured, and 11 workers died instantly. More than 300 homes and surrounding structures were damaged, with estimated value of 1.5–1.7 billion baht.²² In addition to life and property damage, each event also left behind residue and pollutants which accumulate in the environment and can last for decades.

Over the 30 years from past events up to the Ming Dih factory explosion in 2021, it can be seen that agencies, organizations, and related entities still have not absorbed the lessons learned from these disasters. Accordingly, there has been little advancement in chemical disaster management and prevention in Thailand. The main chemicals that the Ming Dih Co., Ltd. used in the production of EPS (Expandable

Polystyrene) foam beads are classified as substances that, when burned, are harmful to the human body, both acutely and chronically, as follows.

1

Styrene monomer is a colorless or clear yellow liquid, which is thick like oil.²³ If burned, styrene will release carbon monoxide gas which is harmful to the respiratory system.²⁴ If inhaled, there will be irritation of the respiratory tract, coughing, and difficulty breathing.²⁵ Exposure to this chemical can depress the central nervous system, cause headache, dizziness, drowsiness, fatigue, nausea, and intoxication. High doses can lead to seizures and death.²⁶ If it gets into the eyes, styrene will cause irritation.²⁷ Styrene is a carcinogen.^{28,29}

2

Pentane is a clear, colorless liquid. It smells like gasoline and is flammable. If inhaled it will cause irritation to the respiratory tract, shortness of breath, pneumonia, adverse effects on the central nervous system, drowsiness, headache, dizziness, coughing, lethargy, blurred vision, fatigue, spasms, loss of consciousness, and even death. If pentane vapors, fume, or mist comes in direct contact with the eyes, they will cause irritation. If these fumes are in contact with the eyes for a long time, they will cause conjunctivitis.³⁰

The above two hazardous substances are only two of the chemicals in the factory that have been disclosed to the public. However, in the manufacturing process of the Ming Dih factory, there were many other chemicals that were stored and used that did not come to public light. Still, both styrene and pentane can affect the environment and public health in the short- and long-term. Similarly, in the case of the warehouse explosion at the Klong Toey Port, a month after the accident, many people were found to have been hospitalized. The most common illnesses were respiratory disease followed by skin disease, gastrointestinal disease, eye diseases, nervous system disorders, circulatory system disease, etc.^{31,32} In the case of the chemical tank explosion at the BST Elastomers factory in Map Ta Phut Industrial Estate, in the first five days after the accident, toluene, benzene, and styrene were detected in the wastewater surrounding the plant.³³ This accumulation

of a large amount of hazardous chemicals in the environment continued to affect the health of workers and people living near the factory over time.

Another problem that goes hand in hand with this situation is system of management, storage, monitoring, and control of hazardous substances and chemicals that are raw materials of a factory. In Thailand, these oversight mechanisms are not effective enough, or only the minimum precautions are taken just to barely comply with the law. In such a lax legal environment, the risk of catastrophic chemical accidents is ever-present, and the consequences are even more severe when the factory is located near a residential community.

Another lesson from the case of the Ming Dih disaster is that these types of hazardous-materials factories need to be moved away from residential areas. Urban sprawl needs to be more strictly controlled through zoning so that spread of residential areas does not encroach on industrial sites with hazardous materials. There needs to be a buffer zone between the factory and these communities, and that separation needs to be part of town planning law. The Ming Dih factory disaster is an important case study of the lax enforcement of the town planning law, allowing such a factory to be located in the proximity of a large residential area. Somehow, housing estates, commercial buildings, and department stores were allowed to be close to the Ming Dih factory, with only a short concrete wall separating the factory and a community of hundreds of houses. It is no surprise then, when the explosion and fire occurred, there was significant damage to houses and residents living adjacent to the factory.³⁴

Based on retrospective information gathered from online media, it was found that fires in many factories were mostly among industrial plants engaged in plastic products and recycling plants. From 2017 to July 15, 2021, there have been at least 62 industrial fires. Although the previous fire disasters were not as severe and or damaging as the Ming Dih case, they affected health, life, and property just the same. Some factories even had repeated fires. Often, the exact cause of the fire could not be determined, showing that the current emergency response plan has not been fully implemented. If such countermeasures were implemented, then these disasters would not keep occurring with regular frequency, or at least not be as damaging and lethal as the Ming Dih factory explosion.



Opinions and recommendations

The case of the Ming Dih factory explosion, once again, exposed the laxity of the agencies and organizations involved in disaster preparedness, causing severe and widespread damage to residents, volunteers, the environment, and the public at large. Therefore, there should be actions to correct and prevent problems from occurring so often in the future, such as the following:

1

There should be an examination of the approval documents for Ming Dih Co. which allowed it to expand the production capacity from 2,400 tons per year in 1991 to 36,000 tons per year in 2019. This approval should be compared with the plan for pollution control and rapid urbanization in this area. Whatever the findings, it is clear that the government should have had more control over this company's expansion and production capacity.

2

There should be more serious enforcement of town planning laws in Samut Prakan Province. There should be a re-examination of the juxtaposition of urbanization, residential settlements, and the location of industrial factories. There should be buffer areas established, or some sort of protective divide between factories and the adjacent communities. If there are spatial constraints or a need to expand the factory, then re-location needs to be considered and enforced. The government must have good support measures for re-location, such as a compensation mechanism for the factory to move, or incentives to invest in new land in a safer area.

3

There should be mechanisms and follow-up measures to help those affected by such disasters as the Ming Dih factory. The offending company needs to be held responsible for damages to property to individuals, households, and the public at large. There must be commensurate compensation for damage to life and health, and effects from exposure to toxic chemicals and carcinogens. There also has to be compensation for ecological damage, such as repair and restoration of the local environment.

4

There should be continuous monitoring of health impacts of these industrial disasters by health authorities. There should be special monitoring of risk groups such as fire-fighters and disaster relief workers. They were on duty without any information of chemicals that would help them with protection and appropriate management.

5

There should be a law requiring the development of a central database covering the storage, use, production, release, and transport of various chemicals, and dissemination of such information via an online system that can be easily and quickly accessed by the public. Such a database is needed to lay a foundation for solving problems from pollution and hazardous chemicals that is effective, efficient, and accurate so as to prevent such accidents in the future. This information system is commonly referred to as Pollutant Release and Transfer Register (PRTR), and this is a part of the laws adopted in many developed countries to prevent chemical exposure, and to build public participation in the protection of health and the environment.

Summary

The case of the Ming Dih factory explosion reflects the laxity of the authorities involved in controlling and supervising industrial plants which use chemicals that are potentially harmful to people and the environment. There needs to be a stricter process of approving business expansion in areas with dense population settlements. There needs to be more disclosure and transparency about industrial chemicals, coupled with intensified disaster prevention and mitigation strategies. In the past, disaster management and remediation for those affected were inadequate and not timely. Therefore, the authorities need to learn from the lessons of such disasters as the Ming Dih factory explosion, and take strong action to correct and improve the situation for the long-term, such as seriously enforcing the town planning law. There should be mechanisms and measures to help those affected by these industrial disasters, and continuous monitoring of the health impacts of those who have been exposed to toxic chemicals and carcinogens. The state should enact legislation that requires the development of a central database, covering the storage, use, production, release, and transport of hazardous chemicals.

Image: [posttoday.com/world/657272](https://www.posttoday.com/world/657272)



Smart Farming and the Future of Agriculture in Thailand

“ Smart farming remains concentrated in high-value crops, and there are too few smart farmers. The key question is how to get farmers who produce low-value crops (e.g., rice, rubber, cassava, sugarcane), which are the country’s staple crops, to turn these into higher-value crops by intensive knowledge management, increased productivity, reduced costs, and reduced risks, so that Thai farmers can become Smart Farmers. ”

In 2020, Thailand’s gross domestic product in agriculture accounted for only 8%, but Thailand had 33% of the total labor force in agriculture in the same year. The disparity in the proportion of labor and income has led to five times the income inequality of non-farm and agricultural sectors. Up to a third of rural households have insufficient income for subsistence, and 40% of agricultural households rely on transfers from relatives who migrated to work elsewhere. Therefore, Smart Farming, that lays emphasis on agricultural machinery, biotechnology and digital technology, is a potentially long-term solution for Thailand that will improve the livelihoods of Thai farmers. This article discusses the restructuring of the Thai agricultural sector, consisting of taking advantage of emerging trends, rebounding from the impact of COVID-19 on the agricultural sector, implementing agricultural reform, and embracing ‘Smart Farming.’ The article concludes with policy recommendations.

An overview of the transformation of the agricultural sector in Thailand

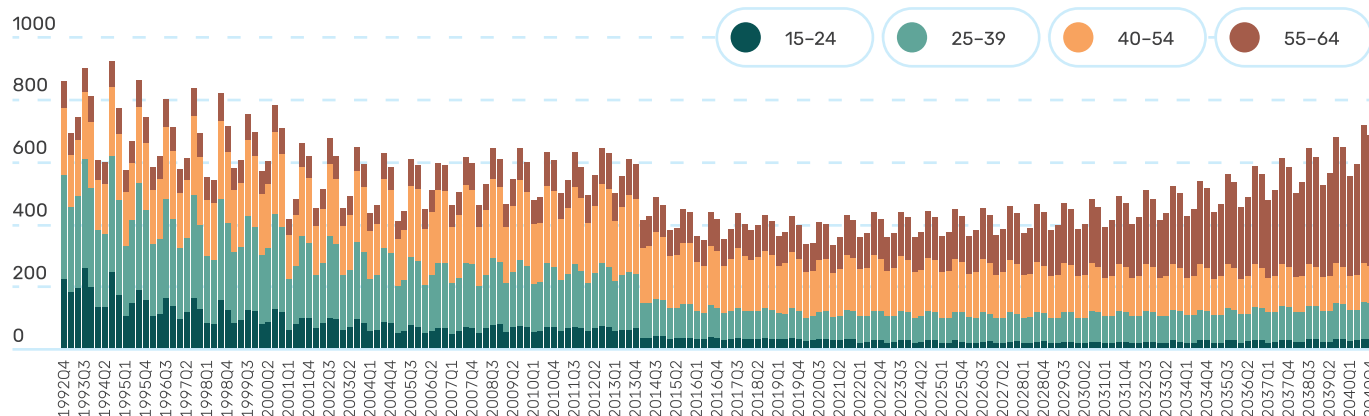
The Office of the National Economic and Social Development Council (NESDC) reported that, in 2020, gross domestic product in agriculture accounted for only 8% of total revenue, down from 10% in 1990. Meanwhile, the Thai National Statistical Office reported that as high as 33% of the total workforce was engaged in agriculture in 2020, despite a decline from 63% in 1990. The imbalance of proportion of the labor force in farming and incomes in other sectors has led to income inequality in the non-farm and agricultural sectors, with the former still as high as five times greater than the latter.¹ As a result of income inequality, many farmers and farm-workers have left the agricultural sector. Plus, the new generation of workers, mostly educated young adults, are choosing not to work in the agricultural sector, even if their parents and elders continue to do so. The number of agricultural workers under the age of 40 has declined from 65% of the total agricultural workforce in 1990 to just 30% by 2020. If this trend continues over the next two decades, the proportion is projected to decline further to only 21%.²

Image: blog.pttexpresso.com/what-is-smart-farmer



Projected hours of work in agriculture

by age group (years)



Source: Niphon et al, 2022.

COVID-19 and the impact on the agricultural sector: The return of laborers to rural areas

Even since the Thai epidemic of COVID-19, starting in late 2019, and continuing throughout 2021, many migrant workers in cities or industrial areas had to leave their jobs or had reduced working hours, a situation that became increasingly unsustainable. In the early stages of the pandemic, the impact of COVID-19 on the agricultural sector was noticeable but not crippling. However, over time, orders for exports began to decline, and farmers started to feel the pain of the global economic contraction. Advance orders for farm products were reduced or canceled. In particular, supermarkets, wholesale markets, as well as large segments of the restaurant sector had to cease operations. Thai government containment measures included lockdowns and travel restrictions in 2020–2021. Then, the government started relaxing measures.

Still, the prolonged COVID-19 epidemic meant that farmers experienced rising logistics costs and lower demand due to lower consumer income. This effect was most evident among fruit farmers. Freight and shipping costs for fruit in 2021 increased by four-fold compared to 2019. Moreover, cross-border trade with China suffered problems of cargo logjams at the borders due to travel restrictions. Furthermore, the number of checkpoints for importing/exporting goods across land borders decreased. This effect has led many farmers to sell their produce through online channels in the country.^{3,4}

It is not only the demand side of consumption that affects the agricultural sector. Several socio-economic studies found that Thai farming households have started to rely on remittances from adult relatives who have migrated away from the home community. A 2020 study by Somarat et al found that 40% of agricultural households depended on transfers of funds from adult migrant relatives. However, COVID-19 caused many of the businesses which used migrant labor to close or scale back. Thus, these migrants, with scant savings, could no longer afford to live in the city, and many returned to the home community, usually in a rural area.⁵

However, studies of these return migrants found that very few intended to return permanently to the family home in the rural areas, especially those who came from the impoverished northeast region of the country. The majority planned to return to the cities or factories as soon as the COVID situation had eased. Studies by the World Bank in 2020 and Somarat et al found that rural household incomes were already experiencing a downtrend, both for agricultural and non-agricultural income. In addition, jobs in rural areas are few and declining, and 1 in 3 farming households have insufficient agricultural income, even for subsistence. Over 10% of farmers had a deficit. Thus, the prospects for returning to full-time farming looked even less attractive to the return migrants.



Image: farmhughouse.com/topic-1-view.html

Agricultural sector reform and Smart Farming development

This stagnation of the Thai agricultural sector meant that farming was losing to the industrial and service sectors of the economy. The government was also concerned about the widening income gap, and this led to massive brainstorming of ideas on how this trend could be ameliorated, if not reversed. Clearly there was a need to reform the agricultural sector and move away from subsistence farming. On the other hand, the Thai population is still predominately rural, and that gives them power at the ballot box to demand subsidies and inputs so that they can maintain their agricultural lifestyles. The strategy of the Thai politicians was to focus on benefits for the producers and that led to price controls, and 'rice-purchase pledging' schemes to try and guarantee a market for Thai agricultural products. This approach did not help the country develop the agricultural sector, however, since it simply helped rural families to maintain their traditional farming methods. This made it difficult to change the structure of the agricultural sector so that it could take advantage of changing technology and business trends, and thereby add value to existing farm products.

Regarding agricultural promotion policies, the historical tendency was to incentivize farmers to work under the same strategy and methods nationwide. This may have worked when there were miracle innovations being discovered and introduced globally (e.g., the "Green Revolution"). That helped millions of Thai rice farmers to improve their cultivation practices and production yields. Indeed, Thailand became one of the world's top food exporters by taking this national approach to farming.

However, such a monolithic approach could not help Thai farmers to compete in an increasingly competitive global market where food prices were tending to decline amid rising production costs.

The "Khok Nong Na" model was one of the brainstorms for the development of the agricultural sector by the government. However, the people who spearheaded this approach did not have a sound understanding of the principles of development, especially when applied to the large northeastern region. The basic principle of Khok Nong Na is the allocation of space and management of water resources for using swamp area and flooded rice fields based on the natural conditions of the Chao Phraya River basin as a prototype. However, the agricultural agencies that applied this model used a uniform strategy for each region and province of the country, telling them to simply replicate the model. They did not take into consideration the context of local resources, which vary quite greatly across regions. In fact, the Khok Nong Na model called for digging ponds to make swamps to use for crop cultivation. However, for that to work, the methods must be adjusted according to soil structure conditions; it cannot simply be replicated the same way across the country. The use of the "Sai Kai" canal irrigation strategy to manage water in the fields is suitable for areas with ample water, e.g., in the lower Chao Phraya River basin. However, it is not suitable for areas that have water shortages for an extended period of the year, or which cannot easily retain water, such as the northeastern region.

Although such cultivation models hold the promise of providing farmers with a year-round supply of food, many are unable to earn much income from the yield because production cannot be converted to economies

of scale that would make it profitable across the board. Plus, the models do not use the traditional expertise and wisdom of the farmers to the fullest extent. Instead, by implementing a single, uniform model, farmers had to spend more hours working in the fields. Many households found that they hardly made enough surplus crop to have money to send their children to advance beyond the free compulsory education. The Khok Nong Na model did not free those households from a cycle of poverty. Instead, appropriate approaches should include allocating some space for high-value crops, intensive use of knowledge, and land plots of manageable size. The goal must be to generate enough income for farmers to earn a reasonable profit to raise the economic status of the household, and help the younger generation gain a higher education than their parents had.

“Smart farming” is one approach that may help raise the status of Thai farmers. A complete smart farming system must consist of knowledge in the following three areas

- 1) Agricultural machinery
- 2) Biotechnology that connects the two
- 3) Digital technology

Future **agricultural machinery** will focus on reducing losses, optimizing/reducing labor, and being more automated. As for future **biotechnology**, more emphasis will be placed on suitable plant varieties that will allow the introduction of mechanization to a greater extent, be more weather resistant, and create more nutrition. The crops may also be used to produce medicines. **Digital technology** is data driven and will use sensors, both in and outside the farm. The data will help control farm machinery and equipment to maximize cost-effectiveness. Smart farming will enable precision agriculture to push production to its biological limits through the use of digital technology.⁶



Image: blog.pttexpresso.com/what-is-smart-farmer



Image: farmhughouse.com/topic-1-view.html

The policy to promote smart farming in Thailand started to be implemented with the 11th National Economic and Social Development Plan (2012–2016). In the first phase, the work consisted of testing models on a small scale to consolidate knowledge and potential. These steps occurred in the university setting or in a government research unit. Farmers and the private sector could then import the tested technology. The farmers were advised to start with vegetables that are mainly grown in greenhouses. In 2014, the Ministry of Agriculture launched a project to promote smart farming, mostly in the form of training and demonstration events, covering 25 topics and 35 products.⁷

Despite its strong promise, smart farming is not easy. According to a 2019 EU report, only 30% of smart farming technology is being used, and this is because of three main problems.

- 1) The technology is still too expensive for small farmers.
- 2) Small farmers have problems with Internet access.
- 3) Governments lack policies to subsidize smart farming.

These obstacles also apply in the case of Thailand. Thus, at the time of this article, smart farming remains concentrated in high-value crop cultivation. In addition, there are still too few farmers who understand how to make the most of the smart farming technology, especially in regard to reducing the use of labor and water system control. These farmers still lack capacity in analyzing forecasts and independent decision-making.⁸ The key question is how to enable farmers who produce low-value crops (e.g., rice, rubber, cassava, sugarcane), which are the country's staple crops, to switch to higher-value crops or cultivation methods to increase productivity, reduce costs, and reduce risks. When that is achieved, then Thailand will truly have a nation of smart farmers.



Image: doa.go.th/hort/?p=17130

Production of medicinal herbs using a plant factory in Samut Sakhon Province



Image: tarr.arda.or.th/preview/item/ybvOrYbjkAa3s4MISsuxh

Drip irrigation system for precise organic cassava cultivation

Policy recommendations

In order for the dream of smart farming to be realized, the state should focus on mid-/long-term agricultural restructuring. There need to be appropriate incentives for farmers/agribusinesses who wish to adapt by using modern technology. The state needs to promote decentralized agriculture together with amalgamations of farmers (group consolidation) because large farms have higher productivity potential than small farms, and have more opportunities to use modern knowledge.

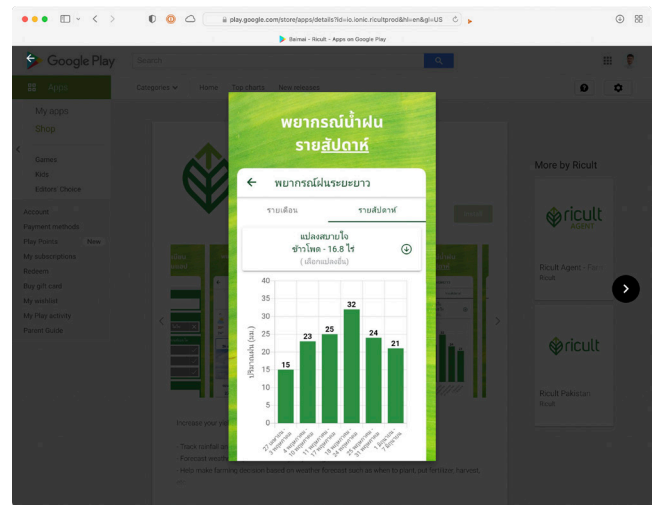
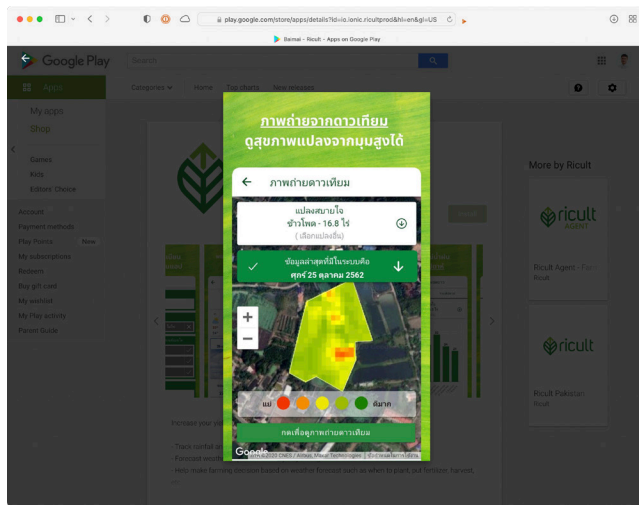
The approach to reform agriculture in Thailand is to change the role of agricultural extension of the government. Originally, the government was the one who created the farming promotion policy, and engaged farmers' groups to collaborate with the private sector to create promotional and marketing proposals. Academics were responsible for knowledge, training, and the construction of demonstration plots on farmers' own land. As for government agencies, their role was primarily to award grants for proposals for agricultural promotion and evaluation funds.

In the future, the private sector will play a more prominent role in contributing change. This is because the private sector has high adaptability, and an ingrained incentive for efficiencies to maximize profits. The private sector has more interest in understanding the latest marketing techniques and technology design. For its part, in

the future, the government should focus just on promoting research and development of technology that is in the public domain, and create a favorable environment and supervise the market to maintain fair and equal competition.

One of examples of this new approach to agricultural extension work as initiated by the private sector is the direct rice seeding method of the Srisangdao Ricemill Co., Ltd. in Roi Et Province, and Chia Meng Marketing Co., Ltd. (Hong Thong Rice). These enterprises were the result of advocacy of the private sector that wanted farmers who grow high quality jasmine rice to increase productivity, reduce costs, and reduce risk due to variable rain conditions.⁹ These enterprises were able to raise the yield of jasmine rice to at least 450 kg per rai from the previous average of only 200–350 kg per rai. This model has been consolidated into the organic jasmine rice project of the Ubon Ratchathani Advance Farmers Group under the supervision of Switzerland's strict organic farming standards. Together with the production and fair trade standards that take into account the interests of farmers, this collaboration is able to produce high quality organic jasmine rice for export at a price that is 22% higher than the market average.¹⁰

There are other examples of smart farming in Thailand, some of which apply advanced weather forecasting



Images: play.google.com/store/apps/details?id=io.ionic.ricultprod&hl=en&gl=US

Ricult application for agriculture through Google Play

systems. For example, there is a new generation of farmers in Chachoengsao Province that uses the latest weather forecast system to determine the harvest date. Such precision can help reduce the damage from air humidity to the paddy that will be sold. It also increases the profit up to 4%. Ricult Inc. is a start-up that provides a forecast of the best planting dates for maize, and applying their methods can increase productivity by about 30%.

There are also promotional activities of the private sector in the high-value cassava group such as Bioethanol Company, which is encouraging farmers to cultivate organic cassava to produce starch that replaces wheat flour for the consumer market.

In addition to the private sector entities that are promoting smart farm production methods, there are also entities that are promoting marketing as well. Supermarket groups such as Tops and Lotus's have encouraged start-ups to develop a resource management planning (ERP) system for ordering, producing, and transporting various types of vegetables with groups of farmers. This allows farmers to plan vegetable production in terms of type, quantity, and time of harvest to match the market demand under a quality control and safety system. Even though the price of the product on the market is not that high, there is lower production risk than before, so the risk-benefit calculation is optimized.^{11,12}

Summary

For decades, the Thai agricultural sector has been left behind from advancements in the industrial and service sectors, leaving a huge development gap. As a result, many Thai farming households had to suffer from insufficient income for their livelihood and meager savings. In the past, the agricultural sector development policy was not very successful. The government applied a single blueprint for all farmers throughout the country to follow, without consideration of the different context of each locality. The government also focused on short-term policy wins. Thus, the government used subsidies rather than changes in production structures for long-term improvements. By contrast, the introduction of smart farming will help to transform production methods by using modern knowledge and technology. This will help raise the income of farming households for a sustainable future. The government should decentralize the power of agricultural extension, and modify its role to just providing grants for agricultural promotion and evaluation. The focus of the government should be on promoting technology research and development to create the most favorable environment, and supervise the market to ensure fair and equitable competition.

Thailand and the Regional Comprehensive Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP): Impact and Concerns

“ Thailand’s participation in any international trade agreement requires a comprehensive study and assessment of its impact in advance. The assessment should look at impact on trade, investment, supply, chain, food security, medicine security, health systems, and achieving the Sustainable Development Goals (SDGs). ”

The COVID-19 crisis—that both the world and Thailand are facing—has produced important lessons for every society that food security, drug supply stability, and universal health insurance system are at the heart of the response to this unique health crisis. Therefore, in the effort to persuade Thailand to join any international trade agreement, it is imperative to study and assess the impact in all aspects. This includes examining impacts on trade, investment, supply chains, food security, drug security, health systems, and progress toward achieving the Sustainable Development Goals (SDGs). There also needs to be public participation in the international trade negotiation process to ensure that the voices of those who stands to benefit and those adversely affected are heard. This article discusses both the potential positive health effects and the concerns about Thailand’s entry into the Regional Comprehensive Economic Partnership (RCEP) effective in 2022, and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). Thailand has expressed interest in joining the negotiations and, thus, this paper compares the relevant content of the two trade agreements and status of negotiations.

Trade negotiations under the 2017 Constitution

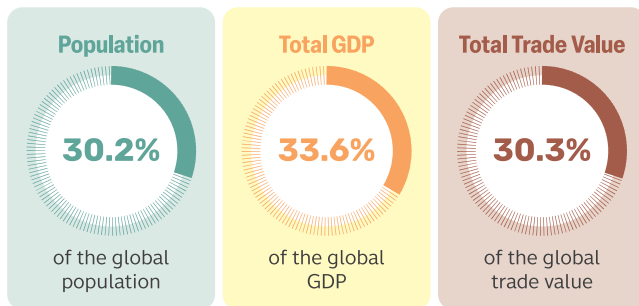
When the 2007 Thai Constitution (former constitution) came into force, Article 190 stipulated that the process of entering into international trade agreements must include careful consideration of the impact on vulnerable segments of the population and the overall benefit of the nation. Furthermore, Articles stipulated that the negotiation framework and findings of any related background research must be approved by Parliament before the negotiations begin. The approach to trade agreements should be based on the principle of timely amelioration of imbalances, appropriateness, and fairness, by taking into account the equitability between the beneficiaries and those potentially adversely affected. However, by the time of the 2017 Constitution, international trade negotiations are no longer bound by Article 190 (of the 2007 Constitution), which removed the requirement to engage the public and institute review mechanisms before entering negotiations and ratifying those agreements. Instead, the new Constitution gave emphasis only to the principle of timely amelioration. As a result, the ongoing

Image: unsplash.com/photos/nRR_wCIH4GQ



international trade talks are a cause of concern to many in society as Thailand deliberates whether to ratify the treaties.

On the other hand, two of the most recent trade agreements are of interest to many sectors of the society and economy because they will apply to a large free trade area consisting of many of the world's major economic powers. These agreements are **the Regional Comprehensive Economic Partnership** or **RCEP** and **the Comprehensive and Progressive Agreement for Trans-Pacific Partnership** or **CPTPP**, both of which are aimed primarily at liberalization of trade and investment. There are also significant differences among partner countries, as well as differential content of the articles of the agreement. Therefore, Thailand is facing considerable challenges as it deliberates the pros/cons of these agreements. The following discusses these trade agreements, their potential advantages for Thailand, and their potential pitfalls.



RCEP member states
Image: Thai Health Report, 2022.

Regional Comprehensive Economic Partnership (RCEP)

RCEP is the largest free trade area in the world, and consists of 15 member states: Brunei Darussalam, Cambodia, Laos, Singapore, South Korea, Thailand, Vietnam, Australia, China, Japan, New Zealand, the Philippines, Indonesia, Malaysia, and Myanmar. These countries have a combined population of 2.3 billion (30.2% of the world's population), a total GDP of \$28.5 trillion (33.6% of global GDP), and a total trade value of \$10.7 trillion (30.3% of total global trade).¹ After Thailand and eight other countries ratified RCEP on October 28, 2021, the agreement officially came into effect on January 1, 2022, with member states benefiting from tax breaks and zero tax on a variety of products, and that will facilitate trade and expand a variety of service business opportunities.

Thailand will receive benefits from RCEP. For example, RCEP members will cancel import duties on 39,366 items of Thai goods, immediately reduce the tariffs to 0% for 29,891 items, while China, Japan and South Korea will reduce and

cancel tariffs on those Thai products. That is an increase in free trade under the existing Free-Trade Agreement (FTA) for a large number of commodities such as fresh and processed fruit, fishery products, fruit juices, rubber and rubber products, automobile and components, plastics, chemicals, electrical components, computers and parts, etc. In addition, the RCEP agreement will facilitate trade between members. For example, perishable goods will receive customs clearance within six hours and normal goods within 48 hours. RCEP will expand opportunities in certain Thai business sectors, such as construction, retail, health, film and entertainment, etc This has significant implications for the Thai health business² as an industry with great potential. RCEP would complement the Thai government policy to establish the country as an Asian hub for world-class health services and medicine, as well as being a premier destination for health tourists around the world.

Favorable impacts

The Thai Development Research Institute conducted a study of the impact of the RCEP agreement³ and pointed out that the liberalization of the health and social products market would have a positive impact on entrepreneurs, healthcare professionals, consumers, and the overall economy of Thailand as follows:

1

Entrepreneurs and investors: There is an opportunity to open a business among RCEP members, especially in neighboring countries, including more travel into Thailand to receive services.

2

Medical personnel: There is freer movement of medical personnel across borders. Thailand could attract clinical personnel who have special expertise, with potential for technology transfer to Thailand. In addition, fewer restrictions on travel and work in Thailand by foreign health personnel would address staff shortages in that sector. Similarly, Thai medical and health personnel could find jobs abroad in RCEP member countries to accumulate knowledge and experience, and return those benefits to Thailand upon repatriation.

3

Domestic consumers: There will be more service options, better services, and a greater variety of services. There will be more opportunity to invite foreign medical personnel with expertise in certain rare diseases that Thai medical personnel lack. RCEP should also open the regional market to Thai private hospitals and a greater potential caseload.

4

Overall economy: The benefit from the expansion of the healthcare industry with two-way flow of personnel and expertise will revitalize knowledge management and modern technology in this sector, resulting in a wide range of medical services that are more accessible and affordable to the general population. Regional medical and health centers can become hubs to generate income for the country going forward.

Concerns about the impact

1

Provision of medical services: There are concerns from Thai health-related agencies that RCEP will allow the in-migration of under-qualified medical/health personnel, or practitioners who come from countries with different standards of care than Thailand. There would likely be problems related to language and communication issues between foreign medical personnel and Thai clients.

2

Intellectual Property: RCEP purports to provide intellectual property protection that exceeds the standard in TRIPs, or “TRIPs+”, such as joining the Patent Cooperation Treaty (PCT) that requires a member country’s patent office to institute counterpart protections. The country would have to have an office which screens applications for use of intellectual property. Any changes in the screening process might allow multinational corporations who own intellectual property rights to apply for a one-time patent in many countries. RCEP could extend the patent protection period, and that might cause pharmaceutical and chemical corporations to monopolize the market for extended periods. This might impede access to expensive medicines by developing countries, and exacerbate national health problems, for example, where compulsory licensing has allowed the use of generic drugs used to treat a variety of life-threatening diseases, such as HIV, hepatitis C, cancer, heart disease, etc.⁴

3

Issues related to data exclusivity: Data exclusivity is a protection that goes beyond TRIPs agreements that may provide endless technical protection for patents or no expiration date (Evergreening Patent). That could have the effect of delaying the release of cheap, generic drugs on the market of member countries, or may restrict people’s access to essential information, e.g., about side effects from drug use, etc.

Therefore, **Thailand should reassure society that the ratified RCEP agreement has been in effect for some time, and will not affect the public health system** or health status of the country. Thailand should ensure that all people have access to medicines comprehensively. There should be support for the production of generic drugs and technology transfer, as well as budget for continuous research and development of the health system.

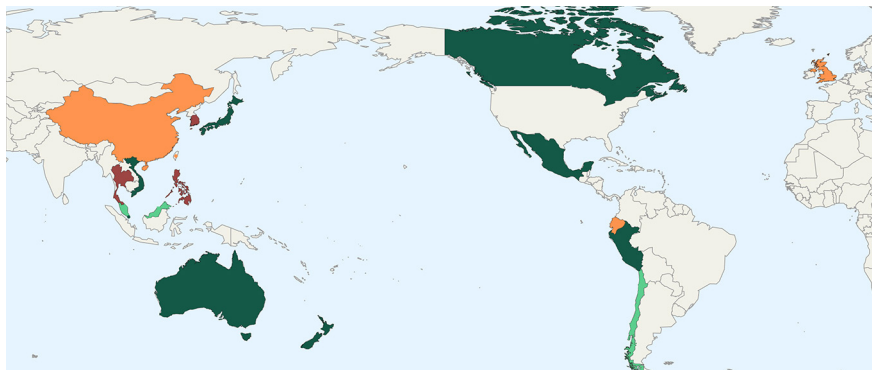


Image: Reuters/Aflo on jiaa.or.jp/en/ajiss_commentary/simultaneous-application-for-cptpp-membership-by-china-and-taiwan.html

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)

The CPTPP Agreement is another trade agreement of global importance, and significant potential impact for Thailand. The number of participating member states is smaller than RCEP. There are 11 members, namely Canada, Mexico, Malaysia, Singapore, Japan, Australia, New Zealand, Brunei, Vietnam, Chile, and Peru. CPTPP has more comprehensive agreements in trade and investment, but also extends to the services sector, government procurement, and intellectual property protection. For example, CPTPP members must join the International Union for the Protection of New Varieties of Plants (UPOV) 1991, and link with the Drug Patent Notification System. There are also increased protections of labor rights (according to the ILO convention), such as the requirement to allow labor unions and collective bargaining for foreign migrant workers in member countries. That provision is a higher standard than the FTA that Thailand is a signatory to. CPTPP is a multilateral agreement covering a large market, covering 7% of the world's population and 13% of the world's economy. The agreement has attracted additional economic powers including China and Taiwan (who submitted a letter requesting to negotiate on September 16 and 22, 2021, respectively).⁵ If these countries/territories are combined with the 11 CPTPP members, it would make their collective economy one-third of the global total. The CPTPP agreement is, therefore the next target for Thailand's negotiations.

Joining the CPTPP multilateral agreements may help Thailand expand opportunities to export a wide range of goods to new markets in countries that are not members of the RCEP or do not yet have an FTA with Thailand. Thailand can take advantage of the free movement of goods from the North America, Europe, and Asia, which will give Thailand the opportunity to be a more integral part of the global production chain. That could help Thailand attract investment from member countries, as well as increase the country's competitiveness. Over the years, Thailand has had a tendency to lose competitiveness to trading partners in the region such as Vietnam, Malaysia, and Indonesia, especially when some key Thai competitors, such as Vietnam and Malaysia, joined the CPTPP. Thus, Thailand has been pressured by foreign investors to join the CPTPP in order to be able to export goods with the same tax benefits as other countries.⁶



CPTPP-related countries and territories

- Parties
- Signatories
- Formal applicants
- Potential applicants

Image: Thai Health Report, 2022.

Favorable impacts

- 1**

Trade: The entry into the CPTPP will lead to a reduction in tariffs on imported goods between member states. This will allow Thailand to expand its market to countries where Thailand does not have an FTA, and increase the opportunity for domestic consumers to access more options. If Thailand joined the CPTPP, a study has estimated that exports and imports would increase by approximately 1.1% and 1.4% per annum, or to \$2.7 and 3.0 billion, respectively (based on 2019 data).⁷
- 2**

Investment: Joining the CPTPP is expected to enable Thailand to expand its investments and contribute to the retention of skilled and knowledgeable workers in complex industrial sectors such as automotive engineering, electronics, electrical appliances, and machinery. It is expected that investment will grow by 5.5% per year, or equivalent to 200 billion baht (if calculated from 2019 data).⁸
- 3**

Elevated standards of products and services: Liberalization of government procurement to have more competition and upgrading basic labor rights in accordance with the international rules (i.e., improved regulatory infrastructure) will encourage Thai entrepreneurs to raise standards of production and the quality of products and services so that they will be more competitive with member nations.

Areas of concern

- 1**

Restrictions on negotiations: Since the CPTPP has already come into effect in eight of the 11 signatory countries, Thailand's future participation would not be eligible to amend the content of the Articles of Agreement. What can be done is, upon submitting a letter of intent to join the Agreement, Thailand may request exemptions and waivers for certain items. However, those waivers or exceptions must be reciprocal for members of the Agreement.
- 2**

Possible adverse impact on SDGs:⁹ In terms of health, the CPTPP could cause development imbalances in the SDGs¹⁰ in two key areas. The first is the impact on the poor's access to basic services (Target 1.4 under SDG1), such as vaccines and medicines (Target 3.b under SDG3). Under the agreement, CPTPP does not allow state enterprises to discriminate in the purchase of goods and services, and any action must be in accordance with the market price mechanism, including medicines and infrastructure. Those generic medicines and welfare are part of subsidies that the Thai government provides to enable access for the lower-income population. The second concern regards the impact on the disposal of waste products, e.g., hazardous material, infectious waste, and industrial waste (Target 12.4 under SDG12). That is because the CPTPP requires member countries to accept imports acceptance of reconditioned goods (remanufactured goods) which include medical waste. However, Thailand still lacks adequate technology to screen for safety, and implement proper waste management requirements.

3

Biodiversity: The requirement of members to join the New Plant Protection Convention (UPOV1991) may affect biodiversity and the Thai rural way of life. In particular, small-scale Thai farmers may be at risk of criminal prosecution if they collect their seeds in the next season or exchange them in the community. The report of the Extraordinary Commission the House of Representatives stated that Thailand is an important source of biodiversity. This fact makes it unsuitable to apply the provisions of the UPOV1991 Convention to the Thai context.¹¹

4

Extension of patent expiration and monopoly of drug information:¹² While the issue of patent expiration and drug data exclusivity will be put on hold when the US withdraws from the agreement, there remain restrictions that affect access to medicines, such as limiting the privileges of the Thai Government Pharmaceutical Organization (GPO), government procurement, and requiring the Thai FDA to check patents which are private property. It also limits ability of the government to apply the Compulsory Licensing measure which is a flexible provision in the WTO IP agreement that Thailand used to enable the GPO to produce antiretroviral drugs at a vastly lower cost.

5

Costs of medicines could increase:¹³ If Thailand joins the CPTPP agreement, the impact could increase the country's drug expenditure, and the Thai pharmaceutical industry may be adversely affected. This is because the section on linking patents with drug registrations (Patent Linkage) will result in slower release of generics manufactured in the country. Accordingly, Thailand would have to rely more on imported medicines. This would cause an increase in the cost of medicines, and a corresponding decline in the market value of the domestic pharmaceutical industry.

6

The government would be more vulnerable to suits by the private sector: The CPTPP Agreement requires member states to protect external investments as well as allow foreign investors to sue the state through an arbitration mechanism outside the country. For example, private, multi-national companies could sue the government if public health measures too severely restrict marketing of their product (e.g., tobacco, alcoholic beverages, use of CL, etc.).¹⁴

Based on the above, the Thailand Consumers Council (established by the Act on the Establishment of Thailand Consumers Council B.E.2562) expressed concerns about food and drug security from the negotiations under the CPTPP framework. , In addition, the country does not have the capacity to regulate labeling of cosmetics. This puts Thai consumers at risk from inferior cosmetics. The treaty might require the reduction of import tariffs on tobacco and alcohol, or require the import of products contaminated with GMOs, or pork and pork offal containing residual red meat accelerators, etc.¹⁵



image: freepik.com/free-photo/closeup-view-pharmacist-hand-taking-medicine-box-from-shelf-drug-store_11036160.htm

Summary

During the post-COVID-19 crisis, Thailand's public health system and the health of its citizens have been severely traumatized. Thus, **Thailand may need to carefully review its participation in trade agreements, and negotiate some compromises. It is important for Thailand to understand how joining these treaties will affect the health security of the country**, especially the CPTPP, whose impact must be considered in terms of economy, society, environment, and the public health. At the same time, if Thailand wishes to join the CPTPP, it should address the above concerns and have a public and stakeholder consultation process. If there are people who stand to lose benefits, the state should prepare to provide some sort of remediation to the fullest extent as much as possible. The government should also set up a flexible negotiation framework so that it can adapt to the changing complexity of the global marketplace, and the unpredictable health risks on the horizon.

Politics on the Streets and the Way Out



Image: freedom.ilaw.or.th/en/node/888

“Despite the fact that the COVID-19 epidemic disrupted political rallies in 2020, in 2021 there was a return to frequent political action in the streets, accompanied by a marked increase in violence between the state and the protesters, with both sides retaliating. In addition, there have been prosecutions against mob leaders and many demonstrators.”

In 2021, the ‘mob’ returns after the COVID-19 pandemic starts to ease

The political rallies of the “New Generation Political Mob” that had begun in earnest in 2020 have created an unprecedented shock to the Thai political landscape. Even in the face of the dissolution of the many rallies and the situation of the COVID-19 epidemic, this movement could not be stopped, and street rallies continued into 2021, becoming even more intense. This article discusses the newest generation of political mob actions, starting with the chronology of events in 2021, the reaction from the state, the reaction from society, and future political directions.

Toward the end of 2020, the political rallies of the new generation of political activists were forced to the sidelines due to sequential waves of spread of COVID-19. However, before protests resumed, there was a seminal incident, on February 9, 2021, when the state prosecutor filed charges against the four leaders of the protest mob and the People’s Group, namely Parit Chiwarak (or Penguin), Anon Nampa, Patiwat Saraiyam (or Mo Lam Bank), and Somyot Pruksakasemsuk.^{1,2} On February 10, the People’s Group called for another rally under the slogan: “Gathering of people who don’t have anything to eat: Strike the cauldron to oust the dictatorship.”³ Next, on February 13, the People’s Group held another rally under the slogan “Count 1 to a million, and restore power to the people.” There was a large turn-out, but police were able to eventually quell the rally and disperse the protesters.⁴

On February 16, the People’s Group, led this time by Mr. Jatupat Boonpattaraksa (Phai Dao Din), along with the People Go Network, organized a “Walk through the Sky” activity, trekking 247.5 kms from Nakhon Ratchasima Province to Bangkok, in a protest to oust the government. Before the march, a statement was read calling for the government to release the four People’s Group leaders, in addition to issuing three demands: (1) Gen. Prayut Chan-o-cha and cronies must resign; (2) Convene an extraordinary session of Parliament to amend the constitution according to the proposal of the Group; and (3) Reform the Monarchy.⁵

On February 19–20, the same time as the no-confidence debate in Parliament, the ‘Mob Fest’ group held a rally called “MOB FEST #2”, under the theme of “7 Years of Failure.”⁶ This coincided with action by the Thammasat Coalition and the no-confidence debate outside the Parliament building.⁷ On February 23, a rally was organized by the “Anonymous Group” and the Thammasat Coalition to express dissatisfaction with the personnel changes in the Royal Thai Police in the aftermath of the case of “Tua Chang (or elephant tickets).”⁸

On February 28, the REDEM group marched toward the 1st Infantry Regiment of the Royal Guard, (the official residence of General Prayut) before being dispersed by rubber bullets, tear gas, and high-pressure water cannons. A total of 23 people were arrested at the protests, with 33 wounded, including both police and the protesters.⁹

Parliament does not approve the establishment of a Constitution Drafting Assembly

As the political protests continued unabated, the political situation became even more intense. On March 11, the Constitutional Court issued a ruling on the case of the Parliament amending Article 256 of the Constitution to allow the establishment of a Constitution Drafting Assembly to prepare a new constitution.

“The Parliament has the duty and power to create a new constitution. The people who have the power to establish a constitution must first vote on whether the people wish to have a new constitution, and when the drafting of the new constitution is complete, there must be a referendum on whether or not the people approve the new draft constitution.”¹⁰

However, on March 17, the draft amendment to the Constitution Article 256 was voted down by the Parliament.¹¹

On March 20, the REDEM group held a rally at Sanam Luang. The police cracked down on the protests, sparking fierce clashes at several locations, resulting in 19 hospitalizations, including 11 officials and eight civilians, while some members of the mass media were injured as well.¹²



Image: freedom.ilaw.or.th/en/node/888

On March 24, the Thammasat Coalition rallied to demand the release of the People’s Group leaders who were still being held in prison. They also called for a repeal of Article 112, and organized various forms of expressive political activities such as liberation art performances.¹³

On March 28, the police dispersed the occupants of “Talu Fa Village,” which was an ad hoc sit-in, in front of the Government House. The around-the-clock sit-in had started on March 13, and had four demands: Release the leaders of the People’s Group; Draft a new constitution, Repeal the criminal law Article 112; and Have Gen. Prayut Chan-o-cha resign. The police asserted that the sit-in violated the Emergency Decree, and a total of 64 protesters were arrested.¹⁴

On April 4, political activists organized an activity under the theme: “Thai does not tolerate, the unity of the people, for Thailand” at the May Phachatham Memorial. The protesters called for the ouster of Gen. Prayut. The key leaders of the protest included Adul Khiaoboriboon (Chairman of the Committee of Relatives of Heroes May ‘92), Jatuporn Promphan (Chairman of the National United Front for Democracy Against Dictatorship, or UDD), Phiphob Thongchai (former Leader of the People’s Alliance for Democracy, or PAD), and Weera Somkid (President of the People’s Liberation Protection Group and secretary of the People’s Anti-Corruption Network).^{15,16}

On April 29, the People's Group gathered in front of the Criminal Court on Ratchadaphisek Road, holding up a sign reading "45 Days #Restore Bail Rights, Unconditionally."¹⁷ Then, on May 2, REDEM organized a march to the Criminal Court, once again calling for the release of the four leaders of the People's Group.¹⁸

After that, there was a three-month hiatus in mass political protests due to a severe outbreak of COVID-19. In the interim, on July 18, the Free Youth held a meeting at the Democracy Monument with at least 15 groups participating in the rally.¹⁹ The group called for the resignation of Gen. Prayut Chan-o-cha and a diversion of the budget of the military to help people during the COVID-19 crisis.²⁰

On August 1, a "car mob" rally took place on the main road to honk their horns to call for Gen. Prayut Chan-o-cha to resign. Five protest groups joined the event in Bangkok.^{21,22} On the same day, there were companion car-mob events in 30 provinces across the country.²³

On August 7, the Free Youth held a meeting and then marched to the 1st Infantry Regiment (the official residence of Gen. Prayut Chan-o-cha).²⁴ Then, on August 10, the Thammasat Coalition led another car-mob protest to "Oust the Tyrants." Crowd-control police fired tear gas and rubber bullets to disperse the mob. The protesters actually lit fire to two police kiosks.²⁵ On September 19, a group of car-mob protesters, led by Nattawut Saikua and Sombat Boonngamanong, organized an activity under the theme: "Driving cars into tanks," coinciding with the anniversary of the September 19, 2006 coup.²⁶

During August–September, another political mob emerged, called the "Talu Gas" group, which had first gathered on August 13, the day when Thanat Thanakitamnuy (or "Luk Nut"), was shot in the eye by a police officer. That event sparked resentment for the group, which vowed to rally at Din Daeng intersection every day until there was a resolution. There were several clashes with crowd-control police officers.²⁷

Constitutional Court's decision on the overthrow of the government

An event that was a turning point for the movement of the new-generation political mob was the ruling of the Constitutional Court on November 10, 2021 in the case of a lawsuit by Nattaporn Toprayoon against the mob leaders.²⁸ The Constitutional Court made its decision based on Article 49 of the Constitution, and issued the following explanation of the ruling:

"The exercise of rights or liberties of the accused, i.e., the 1st defendant (Mr. Anon Nampa), the 2nd (Mr. Panupong Jadnok), and the 3rd (Ms. Panasaya Sitthijirawattanakul) by expressing dishonest opinions is a violation of the law. There were motives to overthrow the democratic regime of government with the King as Head of State under Article 49, paragraph one of the Constitution. Even though the original event as requested has passed, if the 1st, 2nd and 3rd respondents continue to commit these acts with the intent to cause the overthrow of the democratic regime of government with the King as Head of State, and the Constitution, Article 49, paragraph two, the Constitutional Court shall have the power to order the cessation of such acts in the future."

ภาพ: khaosod.co.th/politics/hot-topics/news_6808381





Image: mgronline.com/onlinesection/detail/964000017052

“Relying on the aforementioned reasons, therefore, it is determined that the actions of the 1st, 2nd and 3rd defendants, in the process of exercising their rights or liberties to overthrow the democratic regime of government with the King as Head of the Constitution under Article 49, paragraph one, the court orders the 1st, 2nd, and 3rd defendants, including network organizations, to cease doing such actions in the future, as according to the Constitution, Article 49, paragraph two.”²⁹

The verdict above directly threatened the mob's leadership and future mob action due to the risk of legal action.

Another important political event was the joint meeting of the Parliament to vote against the principle of drafting a new constitution, known as the “People's Constitution”. “Dismantling the Prayut regime” was proposed by the Re-Resolution group, led by Piyabutr Saengkanokkul and Parit Wacharasindhu. The vote indicated that the principle received 236 votes in favor (203 MPs and 33 senators), and 473 votes rejecting the principle (249 MPs and 224 senators), with six abstentions (3 MPs and 3 senators).³⁰ This vote implied that political change through parliamentary mechanisms would be difficult, and the protest leaders decided that the only recourse was to return to the streets.

Increasing reaction from the state

Prior to the protests, the government often sent warning signs to the protesters to abide by the law. Accordingly, Nattawut Saikua said that the protesters should not violate the law when participating in the ‘Car Mob-Call Out’ activity on August 29, as well as not infringe on the rights of others.³¹ Prior to the scheduled protests for October 31, Gen. Prayut assigned a spokesman of the Prime Minister's Office to implore the people to help maintain political stability, and comply with the law,³² among other appeals.

However, at an operational level, in 2021, crowd-control police officers started to become more aggressive and violent than they had been in 2020. They seemed more eager to use force to disperse the protests, including high-pressure water cannons, tear gas, shooting rubber bullets, etc. As a result, each time a rally was dispersed, there were more injuries than previously. Between January 1 and December 23, 2021, at least 528 people were reported injured in the political protests.³³ Among them were at least 88 children and youth, 29 journalists, three volunteer doctors and nurses, two observers, 146 police, and one soldier. In 2021, the police apparently used the firing of rubber bullets into the crowd of protesters for the first time since the confrontation with “Red Shirt” protests. There was no warning and no reason given for the need for such a harmful approach to crowd control. In addition, 2021 marked the first time that a youth protester died (Warit Somnoi). The youth was found shot and wounded in front of the Din Daeng police station on August 16, and died on October 28. There were also at least two cases of permanent disabilities caused by the crackdown on the protests, one of whom was Thanat Thanakitamnuy, who lost his eyesight.³⁴

In addition to the physical violence from the dispersal of the protests, there has also been a significant increase in prosecution of political protesters. Data from the Thai Lawyers for Human Rights Center shows that, in 2021, 1,513 people were prosecuted for political action, or 835 cases, nearly a seven-fold increase compared to the second half of 2020. Importantly, these include charges of violating the provisions of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005), charges under Articles 112 and 116 of the Criminal Code.³⁵

Reaction from Society

Prof. Surichai Wankaew, Director of the Center for Peace and Conflict Studies of Chulalongkorn University commented that the government should show a spirit of compromise or be ready to adjust its attitude to show that it cares about the demands of the people.

“Don’t show disregard for the appeals, or merely hand it off to be a matter of the police... The continued use of force is not a solution; it will only breed more violence. This is especially true when there is no channel for dialogue. The demonstrators will find a way to communicate by demanding attention and reiterating that the protests are a normal democratic process, and a freedom which is protected under the current Constitution.”³⁶

On August 13, at the Reconciliation Committee, with Thoedpong Chaiyanan as chairman, four proposals were made: (1) All parties need to respect democratic expressions and international rules; (2) All parties should stop violence, and use peaceful



Image: mgronline.com/onlinesection/detail/964000017052

A gathering of people to discuss a no-confidence motion outside the Parliament

negotiations to resolve problems; there should be minimal confrontation, and avoidance of all forms of incitement that could lead to violence; (3) The investigation of incidents of violence should be expedited by people with expertise who are neutral and independent, in order to produce credible policy recommendations on remedial action; and (4) Safe forums for discussion should be opened by independent organizations and cooperation between educational institutions to find solutions to common problems through peaceful means, and to create a dialogue process in which people participate and which is based on the principles of democracy and the genuine rule of law.

On October 8, the Office of the National Human Rights Commission issued a statement urging all parties to consider the following: (1) The protesters should exercise their freedom to protest, but in absolute peace and be unarmed, so that their grievances are heard. There should be no condition in which the police use severe crowd control operations. The government must implement procedures for managing and controlling crowds in accordance with international procedures. Law enforcement must be proportionate, and officers must treat demonstrators peacefully, as well as exercise patience and forbearance in listening to the voices of those who disagree; (2) All parties should support the establishment of a center for sincere negotiations of the problems at hand by giving demonstrators and government officials the opportunity to talk and listen to each other’s opinions, and to reduce confrontation and violence.



Images: bangkokbiznews.com/politics/953464

“August 7 Mob” rally by the Liberation Youth Group. There were clashes between the protesters, and officials used tear gas and rubber bullets to prevent the crowd from passing through Vibhavadi Rangsi Road.

Possible Scenarios

After COVID-19 improves and the emergency decree is revoked, the political protests are expected to be revitalized, both on the streets and online until the main demands (e.g., resignation of Gen. Prayut from the position of Prime Minister and the drafting of a new constitution) are addressed. However, those actions may result in more criminal prosecution against the protesters than before. The prosecution of the protest leaders and the protesters will continue. The previous year’s lawsuits are already in court, and new cases may be filed again, especially under charges based on Articles 112 and 116 of the Criminal Code, including offenses under the Computer-related Crime Act B.E. 2560 (2017). However, the arrest and detention of the accused before the verdict by refusing bail (which is a Constitutional right) may raise questions about the credibility of the justice system.

In addition, the constitutional amendment on the electoral system and the amendment of the Organic Act on Political Parties B.E. 2550 (2017), and the Organic Act on the Election of Members of the House of Representatives B.E. 2561 (2018) will lead to preparations for general elections in the future. If a new election takes place, the results may lead to more favorable political changes and reduce the protests on the streets.

Summary

Although the Thai COVID-19 epidemic in 2020–2021 periodically interrupted street protests, the political protests continued in 2021, which led to a marked increase in violence between the state and the protesters, with both sides retaliating. In addition, there have been prosecutions against mob leaders and many demonstrators. That said, the inefficiency of the government in dealing with the COVID-19 epidemic has become an emerging factor to increase support for political reform. However, the solution to amend the Constitution has stalled because it has not been approved by the Parliament, and that has caused political mob action to continue. Going forward, civil society in Thailand should therefore play a role, parallel to the parliamentary politics, as a coordinating mechanism among various sectors. That may include consolidating claims and proposals, and to cooperate with Parliament and political parties in order to find a more peaceful and sustainable political reform solution.

Recurrence of Flood Disasters: Impact and Adaptations

“ The participation of the local people’s sector plays an important role in shaping the direction of water resource development and management. It will be an important basis for moving toward a new lifestyle that is environmentally conscious, for a sustainable economy and society in the future. ”

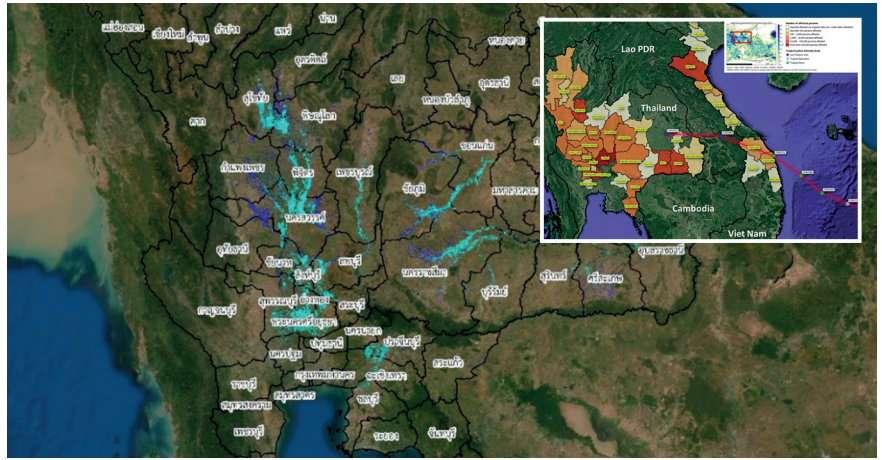
Thailand has been experiencing frequent and severe floods over time, especially at the end of the monsoon season between August and November. Many times, there have been mega-floods that affected millions of people and caused enormous economic damage. For example, in 1942, a historic flood occurred, inundating an area of more than 40 provinces. In 1995, there were great floods in the north, central, and northeastern regions. In late 2011, the worst flood in 70 years covered more than one-third of the country, causing over one trillion baht in property and economic damage. In 2021, another massive flood occurred, affecting more than 30 provinces and covering an area of millions of hectares. Why is it that Thailand has repeatedly suffered floods that cause a lot of damage? How has the problem been addressed in the past? This article will discuss the causes of flooding in Thailand and review climate change impacts that are affecting Thailand. The article also reviews Thailand’s flood management, such as the 20-year Water Resources Management Master Plan (2018–2037), and the Water Resources Act B.E.2561 (2018), and concludes with recommendations for sustainable solutions.

Major floods in Thailand: Past to present

Thailand has experienced frequent and serious flooding in the past, especially at the end of the monsoon season between August and November. The influence of monsoon winds produces continuous heavy rainfall and subsequent flooding. Many of the epic flood events in the past have been recorded and are remembered for their damage and severity. The Great Flood of 1942 was the most severe in recorded Thai history, and before the construction of large water storage dams like the Bhumibol and Sirikit Dams. However, once again, in 1983 a mammoth flood devastated more than 40 provinces of the country, including Bangkok, where entire housing complexes and industrial parks were under water for months. Just over a decade later, in 1995, there was major flooding from the influence of storm winds that blew through the north, central, and northeastern parts of the country. Subsequently, the worst flooding in 70 years occurred in 2011, which caused both life and property loss, as well as infrastructure damage covering more than a third of the country’s area and causing economic damage estimated to be at least 14% of the country’s gross domestic product. The World Bank estimated the economic damage from the 2011 flooding was more than 1.425 trillion baht.¹² This cycle of flood crises has made many agencies, both government and private, recognize the potential impact of flood disasters and the importance of comprehensive water resource management.

Image: nongwaeng-kk.go.th/gallery_detail.php?menuid=2&link=245





Source: National Research Council of Thailand

Flood-affected areas in Thailand from the influence of Typhoon Dianmu in 2021. Dark blue denotes flood-affected areas during September 24–30; Light blue denotes flood-affected areas during October 1–9.

In 2021, another major flood occurred in late September due to the impact of Typhoon Dianmu, a tropical cyclone from the western Pacific Ocean which made land-fall in Indochina, namely Vietnam, Cambodia and Laos. In Thailand, this storm caused heavy rain and flooding in north, northeast, central, and east regions, including Bangkok and its suburbs. On a sub-regional scale, many areas experienced flash floods based on data from satellite imagery, showing flood-affected areas on September 30, 2021 (by the Geo-Informatics and Space Technology Development Agency).³ It was found that the flood-affected areas covered six northern provinces, eight north-eastern provinces, eight eastern provinces, and nine upper central provinces.⁴ In addition, flooding occurred in the lower central region in Pathum Thani and Nonthaburi Provinces, including Bangkok and suburbs, which accounted for more than two million rai of flood-affected area.⁵ The National Research Council of Thailand study reported flooding of 942,694 rai in the irrigated areas of the Greater Chao Phraya Irrigation Project as of October 2, 2021. This comprehensive flooding caused major damage to agricultural produce since the flooding coincided with the end of the harvest season.

Climate change: What Thailand needs to know?

Man-made climate change is one of the main environmental factors contributing to Thai flooding in 2021, coupled with hydrological anomalies that occurred almost simultaneously in short and periods of time. These concurrent events include the Dianmu and Lion Rock Typhoons, the Kompasu tropical storm, and a monsoon trough which swept across areas of Thailand where land use has changed in recent decades, specifically in the area beyond the dams. This affects the increase in the amount of water inflow into reservoirs (reservoir inflow), especially to medium and small dams with capacity to store water quickly, such as the Kwai Noi Bumrungdan Dam, the Pasak Jolasid Dam, the Thap Salao Dam, and Kra Siao Dam. In addition, the change in topography below the dam also affects the change in hydraulic behavior that causes prolonged flooding in many areas on both sides of the Chao Phraya and Tha Chin Rivers.

The relevant government agencies had been implementing countermeasures which may have blunted the impact of the flooding in 2021. For example, the government instituted new guidelines for water management in dams by reducing the amount of drainage and increasing the volume in large storage dams (e.g., Bhumibol and Sirikit Dams) and increased the amount of drainage of medium and small storage dams to maintain the safety of the dam. There were increases in the drainage volume of the Chao Phraya Irrigation Dam to accelerate runoff into the sea, and diversion of excess water into the marshy area through the canal system. This may have contributed to reduction of the severity of the flood damage. These measures also included establishing water reserves that could be tapped into for agriculture during the dry season if there is drought.



Image: mgronline.com/online/section/detail/9640000095556

Flooding in Muang District, Sukhothai Province on September 25, 2021

However, in the past two decades, the influence of global climate change is becoming more and more intense. Increasing global and sea surface temperatures and increasing climate variability are giving rise to more extreme cycles of flooding and drought, not just in Thailand, but in many countries around the world, such as the UK⁶ and China.⁷ Thailand experienced a persistent drought situation in 2018–2020, then severe flooding in late 2021. In fact, no country is immune to impacts of global climate change, and governments and societies must implement measures to soften the impact, cope with the disasters when they strike, and adapt systems and environments to be less prone to damage.

From the analysis of the water resource base in Thailand, it was found that climate change is causing an increase in overall average temperature, and there have been significant changes in rainfall, storm patterns, and storm severity, which is increasing the risk of flooding and drought. The International Panel on Climate Change (IPCC) predicts that areas such as the Chao Phraya River Basin (including Bangkok), tend to be affected by concurrent hydrological phenomena which multiply the effects than if they occurred at separate times of the year (e.g., intense floods, flood drainage problems, and storm surges).⁸ In addition, many research studies on the impact of climate change in Thailand concluded that there is a trend toward increasing mean temperature.⁹ For example, it is estimated that the average temperature between 1970 and 2007 increased by an average of +0.024 °C per year. Moreover, the results of the analysis of changes in seasonal rainfall found that the number of rainy days during the rainy season in Thailand are declining, while the average rainfall volume on rainy days tends to increase.¹⁰ In addition, there was an increase in rate of sea level rise from the previous average of 1.8 mm per year during 1961–2003, to 3.1 mm per year during 1993–2003. Sea level risk is causing the problem of saltwater encroachment, erosion, and destruction of ecosystems in the coastal areas of Thailand as well.¹¹



Image: mgronline.com/online/section/detail/964000095556

Flooding in the Lam Chiang Krai Basin, Nakhon Ratchasima Province on September 25, 2021

Managing flooding in Thailand

After the 2011 mega-flood, the government realized the importance of preparing for and managing disasters caused by man-made climate change. The government elevated the issue of water disasters as a priority item of the national agenda, and directed that it must be addressed by both short- and long-term measures. As a first step, a working group was appointed to draft an ad hoc Flood Management Master Plan with a focus on mitigating, preventing, and reducing the damage caused by flood disasters, and improve the efficiency of flood prevention and management systems in emergency situations. The plan calls for both structural measures to prevent flooding (e.g., increasing the number of reservoirs and their storage capacity; development of medium and small reservoirs; channel improvement; floodway construction, etc.), and non-structural measures (e.g., the “Room for the Rivers” policy; creating “monkey cheeks” to increase a flood retention areas and slow flash flooding; determining an appropriate water diversion plan in the marshy areas; paying compensation to people in flood-affected areas, etc.).¹² In addition, in 2017, the government also established the Office of the National Water Resources (ONWR) to act as the main agency for overseeing the country’s water resource management policy. The Water Resources Act B.E. 2561 (2018) and the 20-year Master Plan on Water Resources Management (2018–2037) provide a practical framework for developing and solving the country’s water resources problems according to the national development guidelines of the National Strategy.

The essence of the 2018 Water Resources Act focuses on having a law to integrate water allocation and water use, develop and manage water resources conservation, restore water resources and fundamental rights to access public water resources, and establish a water resource management organization at the national level, the watershed level, and at the water user organization level. The strategy is to increase opportunities for participation of the people’s sector in water resource management at all levels in systematic integration and management of water resources.¹³ The National Water Resources Committee (NWRC) is the main national organization for oversight, and is chaired by the Prime Minister. The NWRC has a watershed sub-committee as an advocacy mechanism, including the organization of people who use water from the same source in the form of water consumers’ groups, in order to integrate water resource management in a holistic manner.

The 20-Year Water Resources Management Master Plan (2018–2037) places importance on water resources in driving the country’s development according to the National Strategic Plan to build stability and sustainability of the natural resource base and environment. The plan includes measures to promote the development and enhancement of human resource potential in the future according to the “Sufficiency Economy” philosophy, and create a balance between conservation, restoration, and development of water resources, covering the following six main areas:¹⁴

- Area 1** Water consumption management
- Area 2** Building water security in the production sector
- Area 3** Flood management
- Area 4** Water quality management and water resources conservation
- Area 5** Conservation and restoration of degraded watershed forests and soil erosion prevention
- Area 6** Management

However, the issue of drought management in the 20-year Master Plan is given relatively little attention. Moreover, the implementation framework of the Master Plan still lacks linkage between objectives, strategic plans, the way forward, and achievement indicator targets, for example, the net zero greenhouse gas emissions target, a key goal of the 2021 United Nations Climate Change Conference (COP26).

Future water management guidelines

It will be important to build public awareness through government policies and organizations, and promote self-adaptation of people and communities to coexist with recurring flood disasters with minimal impact. That will go a long way to alleviating flooding problems at the local level. Those strategies are also part of the development of flood protection plans in large areas. Some key measures include community adaptation through “flood proofing” and “flood fighting,” in which people learn to cope with floods on their own from past experiences in the area. Communities can take local action such as reformatting the construction of houses and residences into two-story buildings in flood-prone zone, elevating building columns above the highest level of flooding ever to occur, elevating the embankment in building infrastructure, constructing sandbag ridges or flood barriers to enclose a vulnerable area, etc. Communities need to be vigilant if the water level in the river is rising upstream, and have early-warning systems for flash flooding. Broader-scale measures include the creation of water diversion channels or drainage from sensitive areas, as well as modifying agricultural production plans such as planting crops to allow harvesting before the flood season arrives, and the cultivation of crops with high economic value and good flood resistance, among others.¹⁵

It is a good sign that the issue of new ways of flood management at the community level (the “new-to-next normal”) has received more attention from the government in the development of flood protection plans. This is important due to the density of new settlements and buildings, as well as uncoordinated urban planning, and changes in land utilization that obstruct water traffic routes. The Department of Public Works and Town & Country Planning has, therefore, formulated a new land use policy to be in line with future development policies by adjusting the land use Master Plan and including it as part of the Town Planning Act B.E. 2562, and the Water Resources Act B.E.2561 as part of comprehensive town planning as well. During 2015–2019, the Department of Public Works and Town & Country Planning has



Image: [bbc.com/thai/thailand-58860541](https://www.bbc.com/thai/thailand-58860541)

An aerial view of the Golden Mountain community of Ayutthaya City who were affected by flooding from the aftermath of the storm “Dian Mu” in October

Summary

developed a master plan for flood prevention systems for community areas in every province. There are provincial drainage plans in all watershed areas of the country to set a unified framework and direction for solving flooding and drainage problems in the future. This is an integrated effort in collaboration with the other related agencies, such as the Royal Irrigation Department, the Marine Department, and the Office of the National Water Resources. In addition, during 2019–2021, the Department of Public Works and Town & Country Planning implemented a feasibility study and design survey. The details of the flood prevention system in the new approach consist of: (1) Communities in Phetchaburi Province; and (2) Communities in the central watershed covering 13 sites.¹⁶ The aim is to be flexible and appropriate according to the physical characteristics of each target community area. The strategy is also suitable for both engineering, economics, and the environment, while being in accordance with the needs of the community.¹⁷

The role of the people's sector in taking part in solving flooding at the community level is mostly expressed in the form of opinions about the water management policy plan of government agencies. In this regard, the success of the participation of the public sector in Pak Kret Municipality in Nonthaburi Province in community management in the face of the 2011 flood, is a good practice case study which built upon the lessons that have been learned and applied. In particular, the role of local leadership organizations played an important role in helping to protect the Pak Kret community in the face of critical threats, and to drive public participation in the area. During the 2011 mega-flood, a central administrative center and a sub-center were established along the Chao Phraya River to monitor water levels, and waterproof walls that may have been damaged overnight. They prepared an emergency flood prevention plan and set up a task force according to the municipality's eight main missions, including a 24-hour surveillance unit, a public relations unit, a material support unit, a relief unit, a victims' rehabilitation center, an emergency relief center, a community unit, and a monitoring and assessment unit.¹⁸

Flood problems occur frequently in Thailand, partly due to the expansion of cities and communities into natural floodplain areas, land use that is inconsistent with water management guidelines, and the effects of global climate change. Thailand has tried to learn from past experience, and has set guidelines for flood management and the utilization of water resources. However, in the past, the operations of the state lacked public participation and problem management at the local level to serve the purpose of the community. Thus, these plans and guidelines were not as effective as they should be. The participation of the local people's sector plays an important role in shaping the direction in the development and management of water resources in a tangible manner. A grassroots approach is becoming a more important foundation for moving forward toward a new way of life that is eco-conscious, and supports a sustainable economy and society going forward. New approaches to preventing flooding in community areas are emerging, and that is a good sign that, in the future, flooding problems in Thailand may be managed in a more systematic and effective manner.

Image: unsplash.com/photos/_whs7FPkqwQ



#SAVE Bang Kloi and the Rights of Ethnic Minority Groups

“ The conflict in Bang Kloi in the forest of Kaeng Krachan National Park is a reflection of the problem of arable land rights among ethnic minority groups in many areas of Thailand—it is not just about the Karen people in Bang Kloi. ”



Image: news.dnp.go.th/news/1777

Bang Kloi Village, Huai Mae Phriang Subdistrict, Kaeng Krachan District, Petchaburi Province

After the establishment of Kaeng Krachan National Park in Phetchaburi Province in 1981, ethnic Karen people living in the middle of the Kaeng Krachan forest were re-located by the government to the lower Bang Kloi River area in several waves. However, because the new area was not suitable for farming, the villagers started a movement to demand justice, and be allowed to return to their previous settlement in the forest. Later, the Bang Kloi issue became better known to the public from the Civil Society campaign using the hashtag #SAVEBangKloi. That campaign was a claim for rights, not only of the Karen Bang Kloi ethnic minority, but also the people who were being adversely affected by various policies of the state on rights to arable land. Usually, the victims of these policies were ethnic minority groups, marginalized populations, or other disadvantaged groups in Thai society. This article reviews the history and conflicts of the Karen people’s right to settle and pursue a livelihood in Kaeng Krachan National Park, claims of ethnic minority groups for access to arable land, and suggestions for addressing the various conflicts of interest.

Background and conflict in the Bang Kloi area

“Bang Kloi” is the name of a Karen village located in the middle of Kaeng Krachan Forest that the villagers call “Jai Paen Din” or heart of the land. Historically, the Bang Kloi people lived in harmony with nature, and practiced shifting cultivation in the forest area for many generations. However, in 1981, the area where the Bang Kloi people were living (i.e., heart of the land) was declared part of the Kaeng Krachan National Park.¹ Years passed without any action by the state. Then, in 1996, the Karen people were forcibly removed from the Park area, and resettled near Ban Pong Luek Village, with the promise that they would be allocated arable land for farming. Indeed, some land was allocated, but rice cultivation was difficult because the soil had a rocky substrate. In addition, some villagers did not receive any land rights, and they were unable to access the welfare assistance program. This led some of these dispossessed Karen to attempt to return to Jai Paen Din in 2011, but they were repulsed to Lower Bang Kloi Village, leading to the popular movement for land rights for ethnic minority groups in Thailand.

Originally, Bang Kloi Village was established under the Local Administrative Act B.E.2457, and was named Village № 1, Huay Mae Phriang Subdistrict, Kaeng Krachan District, Phetchaburi Province, in what is currently the territory hosting the Kaeng Krachan National Park. The village, populated by members of the Karen hill tribe, was 54 kms from the Kaeng Krachan District Office. The village was situated at the northern end of the sub-district where the Bang Kloi River flows through to join the Phetchaburi

River, referred to in the local language as “Kleh looj.” Historically, the villagers made a living by farming, embroidery, weaving, and general wage labor. At present, “Bang Kloj” is a collective term for two areas: “**Upper Bang Kloj,**” which refers to the original settlement (Jai Paen Din), and “**Lower Bang Kloj,**” where villagers were relocated to.²

Kaeng Krachan National Park authorities and the military agreed that the Jai Paen Din is vulnerable to disruption of the natural resource base, as well as being in a sensitive area with potential threats to national security (since it is near the Thai-Myanmar border, through which there is considerable illegal cross-border migration in both directions). Therefore, the Karen hill tribe people were forcibly re-located south of their original settlement. The first migration took place in 1996, when a portion of the villagers from Jai Paen Din were relocated to an area opposite of Pong Luek Village. The state had constructed over 50 houses, and provided each family with seven rai of land for farming and one rai of land for their house. After that, subsequent migrations were arranged until Jai Paen Din no longer had any inhabitants.³

Subsequently, in 2010, the Cabinet issued a resolution to promote the Kaeng Krachan Forest to be a UNESCO World Natural Heritage Site (which it eventually was in 2021). The feeling of the government was that Kaeng Krachan is one of the most complete forests in the ASEAN region, and is home to many endangered species of animals. This policy was followed by more decisive action between 2010 and 2011, known as the “Battle of Tanintharyi,” in which the park officials and the Thai military demolished buildings in Jai Paen Din to force the Karen people to move down to Ban Pong Luek (i.e., Lower Bang Kloj).⁴

The operation prompted Koey Mimi, or “Grandfather Ko-Yi,” a 100-year-old Karen member of the original settlement, along with five other villagers to file a complaint with the Administrative Court for damages from the Department of National Parks, Wildlife and Plant Conservation, as a serious violation of human rights. Grandfather Ko-yi also requested the court to allow



Image: themomentum.co/bang-kloi

Environment in Bang Kloj Village

Karen people to return to live in Jai Paen Din. The first witness called was “Billy” or Porlajee Rakchongcharoen, grandson of Ko-Yi, a community leader, and a member of the Huay Mae Phriang Subdistrict Administrative Organization. However, just a month after testifying, Billy mysteriously disappeared on April 17, 2014. Billy’s wife later claimed that Chaiwat Limlikit-Aksorn, the head of Kaeng Krachan National Park and his cronies had kidnapped Billy. Later, the Department of Special Investigation (DSI) discovered a skeleton in an underwater tank in the Kaeng Krachan Forest. While the DNA of the bones matched that of blood relatives of Billy, there was no strong evidence to indict anyone with a crime. In the end, the state prosecutors decided not to pursue the case, and dropped all allegations. Billy’s wife appealed to the Supreme Court for an emergency hearing, however the court ruled that the petitioner had no new evidence that Billy had been kidnapped and killed.⁵ In addition to the case of Billy, there was also the case of Taskamon Oobom, a former MP candidate in Phetchaburi Province who played a role as coordinator of the Karen group in prosecuting the Park officials. He was found shot dead but, once again, there was no evidence to implicate anyone in a crime.⁶

Subsequently, the Bang Kloj villagers filed a lawsuit against the Department of National Parks, submitted to the Administrative Court on June 12, 2018. The Supreme Administrative Court ruled that the authorities had overused their power by destroying buildings and property of the Karen villagers (in Jai Paen Din) causing the villagers to lose their livelihoods. The Court ordered the Department of National Parks to pay compensation for damages totaling about 300,000 baht. That said, the Court also held that the Karen people could not return to Jai Paen Din since that land was now part of the Kaeng Krachan National Park.⁷

A new wave of conflict at Bang Kloi erupted again in early 2021 when a number of villagers decided to walk back up to the Upper Bang Kloi (i.e., Jai Paen Din) because they felt they could not farm the land in the Lower Bang Kloi and, thus, it was not suitable to pursue a fair livelihood.^{8,9,10} Then, on February 17, 2021, government representatives signed an MOU with representatives of the Karen villagers which proposed six sustainable solutions for the improvement of quality of life and environmental stewardship per the Ministry of Natural Resources and Environment.^{11,12} In fact, the actual situation in the area has not improved much, and the “watershed forest protection conflict” has continued to fester. In March 2021, there was a news report that multiple units of government officers seized the area where Karen villagers had illegally settled in Jai Paen Din, consisting of 18 plots of land comprising 125 rai. The authorities used evidence from aerial photographs and satellite images to prove that the Karen villages had been trying to re-settle in their original location in the National Park area. That was the basis for arrest warrants, resulting in the detention of 30 villagers as part of plans to prosecute them under Thailand’s National Park law.¹³

World heritage and forest conservation

The Kaeng Krachan Forest has been registered as a new natural world heritage site (the third in Thailand) according to the World Heritage Committee’s resolution on July 26, 2021. The Forest qualified for the 10th criterion, which is a habitat for endangered plant and animal species, and has outstanding global value. Indeed, the World Heritage Committee had rejected the application for the Kaeng Krachan Forest three times in 2015, 2016, and 2019 out of concerns about human rights violations against the Karen indigenous communities in the area. The Natural Resources and Environmental Policy and Planning Office, as the central coordinating agency under the Convention on the Protection of World Heritage, confirmed that the Thai government would focus on the constructive and peaceful coexistence of indigenous people and the forest. Accordingly, the Thai government started implementing a policy to promote participation of the Karen community in managing the area. For example, two representatives of ethnic minority groups from Ban Pong Luek and Ban Bang Kloi joined an advisory committee, and the government agreed to employ Karen people to work in Kaeng Krachan National Park.¹⁴

In the past, many World Heritage sites have benefited from conservation, knowledge, and funding to support the mission to preserve and restore the World Heritage site. There is a network of alliances in the management,



academic, and private sectors to develop the economy and local communities in these sites.¹⁵ By maintaining the way of life of the local people, the designation of the Kaeng Krachan Forest as a World Heritage site does not mean that the indigenous people have to be extracted from the Forest in any way. This can be seen from the experience of the Thung Yai-Huay Kha Khaeng Wildlife Sanctuary, which is part of the western Thai forest that was registered as a Natural World Heritage Site in 1991. Today, there are six Karen villages in that site, and they have adjusted their farming methods to reduce shifting cultivation, or reduce the cycle period from 10 years to 3–5 years.¹⁶ The situation must be monitored to see whether the government will continue to comply with the similar policy in the Kaeng Krachan Forest.

Lower Bang Kloi and problems with arable land

From past to present Thai society has always faced issues of inequality in the allocation of arable land to ethnic minority groups, with the government position being that minority groups tend to use natural resources in destructive ways. Thus, they feel it is the government’s responsibility to restrict human access to protected forest areas. There is the concept of two types of forest management. The first is that forests can serve economic benefits (i.e., reserved forests), and that forests must be preserved for conservation such as national parks, and



Images: thecitizen.plus/node/41821

Allies of #SaveBangKloi P-Move settled in to rally at Parliament on March 7, 2021

wildlife sanctuary. The second concept is that the forest must be “human-free” out of the belief that people can never live in harmony with the natural forest. They cite the example of “hill deforestation” which gives rise to flash flooding, as a basis for the legitimacy in the use of state power to deal with encroachment of ethnic minority groups in protected forests.¹⁷

As for the Bang Kloi case, following the push by the authorities in 2011 and the “Battle of Tanintharyi,” the Bang Kloi Karen tribe split into three groups. One group migrated across the Myanmar border; the second evacuated Bang Kloi and re-settled in Purakam Village, Tanaosri Subdistrict, Suan Phueng District, Ratchaburi Province. The third group migrated to the village of Pong Luek-Bang Kloi, which was closer but less desirable due to insufficient agricultural land and housing. In addition, after the 2014 coup, the NCPO’s Forest Reclamation policy resulted in a deterioration of the situation, with frequent arrests and prosecutions of villagers for forest encroachment.

In the past, the Karen way of life was inseparable from the indigenous environment, and that is directly related to social

relationships. Villagers live in family groups or in kinship circles. Each group consists of about three to six houses, some of which are separated from each other by a half-day walk. These groups are spread out in the forests of the Upper Bang Kloi area (i.e., in/around Jai Paen Din). However, when the government forcibly re-settled the Karen, they were compelled to live as a single group cluster in a bounded area. The downside is that the land in the new area is not suitable for farming due to a rocky substrate. In addition, there is a problem of water shortages and pests.¹⁸ Thus, a large proportion of Bang Kloi villagers have also been found to suffer from malnutrition,¹⁹ and most households face food shortages. They are incapable of becoming self-sufficient for food, and have to rely on welfare and donations.²⁰

Ethnic minority groups and land rights

There are many ethnic minority or tribal groups in Thailand. Some groups settled in Thailand centuries ago, but did not enter the Thai nationality verification system because they lived in a very remote area or were nomadic, traveling back and forth between the Thai-Myanmar or Thai-Laos borders. Indeed, such cyclical cross-border migration was the traditional way of doing business, and had become the cultural way of these tribes. With modernization and political-administrative borders, this nomadic lifestyle became problematic since national identity requires a fixed address, and personal identification documents. This, in turn, deprives undocumented folk of access to land and other rights which citizens enjoy.²¹ The situation is further complicated when the indigenous land where ethnic minority groups and tribes have lived for generations becomes protected forest or national parkland. These

designation are superimposed after the fact, without giving the local settlers the opportunity to adapt. As a result, these groups of people are unable to obtain land rights documents since the land they have lived on for generations is no longer eligible for human settlement.

The approach of the Thai government has been to provide alternative land plots to the displaced people. Ever since the change of government in 1932, especially after the enactment of the Agricultural Land Reform Act (which can be traced to the October 14, 1973, “Students Revolution,” with the vision of distributing land tenure rights into the hands of farmers without arable land). However, because many members of remote ethnic minority or tribal people did not have national identity documents, they could not be protected or served under the Land Reform Act. What is more, the tribal populations were not numerous enough to attract the attention of politicians to advocate for their cause.

However, there are some government policies related to land rights of ethnic minority groups, such as the establishment of hill tribe “self-help settlements” in various provinces. Most of these are in the northern region and include cultivation rights, even though the land is located in reserved or degraded forests. That provision of “cultivation rights” was initiated around 1982. In addition, there are projects under the Royal Patronage of King Rama IX, including Cabinet resolutions during the Abhisit Vejjajiva government, such as the resolution issued on August 3, 2010 which approved the policy to restore the Karen way of life as proposed by the Ministry of Culture. This was to be accomplished by declaring certain settlements as a **special cultural area** of Karen ethnic minority groups (e.g., at Ban Huai Hin Lat Nai, Wiang Pa Pao District, Chiang Rai Province, among others).

Recently, there has been a trend toward greater protection of human rights of ethnic minority groups in accordance with the principles of the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), in which Thailand is one of the 143 signatory countries. However, since that time, no measures or mechanisms have been taken

seriously to promote and protect the rights of indigenous peoples in Thailand. Only some agencies recognize the importance of this issue, and there are only certain laws that provide for the coexistence of indigenous peoples with the national forest, such as the National Parks Act, Article 64 which requires surveys of land holdings for people living or working in the area. Before this law came into force, there were ad hoc relief measures for people to be able to coexist with the national forest area in a sustainable way, similar to Article 121 of the Wildlife Preservation and Protection Act,²² and the Community Forest Act that allows local communities with the ability to maintain forests to apply for the establishment of a community forest to the provincial governor. However, the community forest must be outside the protected forest area (Article 32). Those laws were rushed out at the end of the NCPO era at the beginning of 2019. While they seemed like an acceptable solution at the time, these new laws actually have greatly increased the power of the government.

The 2019 Wildlife Preservation and Protection Act and the National Parks Act were the first laws of their kind to recognize the existence and rights of indigenous people in the forest. However, the laws imposed conditions on those who would be allowed to live on those lands. For example, there would have to be no alternative arable land which the indigenous peoples could easily relocate to. The area must not be in a National Park or wildlife sanctuary, or other non-hunting area, as designated before both Acts came into force. These conditions were codified according to the Cabinet Resolution of June 30, 1998 and/or the Order of the NCPO N^o 66/2557. The surveys which classified the type of land which the indigenous people were settled on was conducted by outside authorities, and if the survey was not completed within the specified time (e.g., 240 days) then the villagers living in the forest would not be certified to stay there by default.²³ Despite the large number of communities that were declared to be encroaching on protected forest reserves with great forest management potential, this area is insignificant given the total protected forest area. Thus, the communities in the protected forest area can be strictly controlled.²⁴



Image: mgonline.com/travel/detail/964000020086

A fissure in the middle of the forest that is a world heritage site that has led to the trending site #SaveKaengKrachan

Guidelines for a solution

The Bang Kloi case is an example of the contradiction of the concept of “People can live sustainably in the forest”, which the state has already begun to accept. In addition there were stipulations that there could be no human settlement in a watershed forest. However, the Bang Kloi villagers needed to return to “Jai Paen Din” because they wanted to follow traditional farming methods that require a lot of space to move around. The downside is that those methods of cultivation exacerbate the problem of deforestation. In search of a sustainable or **long-term solution**, the state must abide by universal principles of international obligations on the promotion and conservation of livelihoods of ethnic minority groups. Indeed, even the Thai Constitution recognizes the right of communities to manage, maintain, and utilize natural resources, the environment and biodiversity in a balanced and sustainable manner (Article 43 [2]). The Constitution also calls for the promotion and protection of Thai ethnic minority groups so that they have the right to live peacefully in society according to their culture, and traditional ways of life, and so that their happiness is not disturbed (Article 70). The government has to improve various laws to be consistent with those provisions, as well as develop new laws which directly promote and protect ethnic minority groups, by clearly affirming the right to a livelihood of the ethnic minority groups. There need to be careful surveys of the existing ethnic minority groups in these parts of the country in order to document their community information, residential areas, farming areas, culture, and spiritual areas so that ethnic minority groups can exercise their rights in their homelands in accordance with their traditional way of life and culture, but in a sustainable manner. To this end, there need to be agreements with different groups of people on the balanced and sustainable utilization of natural resources.

Summary

The decades-long conflict in the Bang Kloi area in Kaeng Krachan National Park forest reflects the problem of ethnic minority groups' land rights in many areas of Thailand. This issue is not only affecting the Karen in Bang Kloi—many other ethnic minority groups are not protected by the state, either as citizens or by other rights such as living space, farming area, cultural area, possessory rights, and the right to manage their original local community areas. The government should deal with such problems with compassion and understanding, using dialogue and participation from all sectors for sustainable community development solutions. A good example of how this is done is the Royal Doi Tung Development Project. In addition, there should be new or improved laws to ensure community rights in the management, maintenance, and utilization of natural resources and the environment, while protecting biodiversity in a balanced and sustainable manner in accordance with the Thai Constitution.

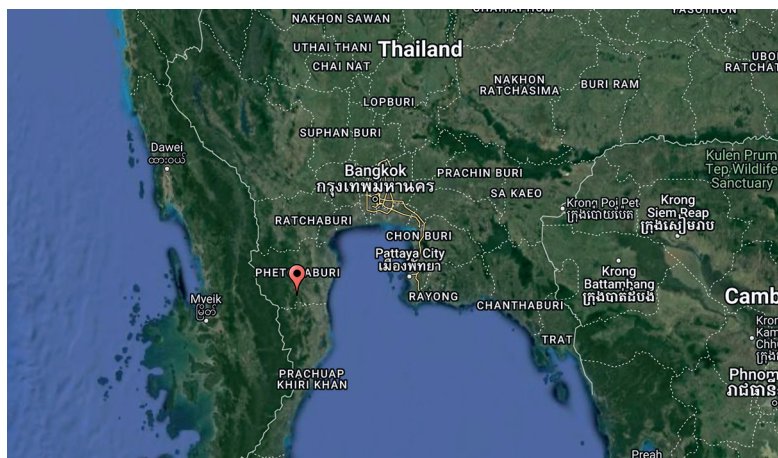


Image: [google.com/maps/d/viewer?mid=1jmCRSepzSMDUNO1YPIlSTV3p8Y](https://www.google.com/maps/d/viewer?mid=1jmCRSepzSMDUNO1YPIlSTV3p8Y)

Location of Pong Luek–Bang Kloi

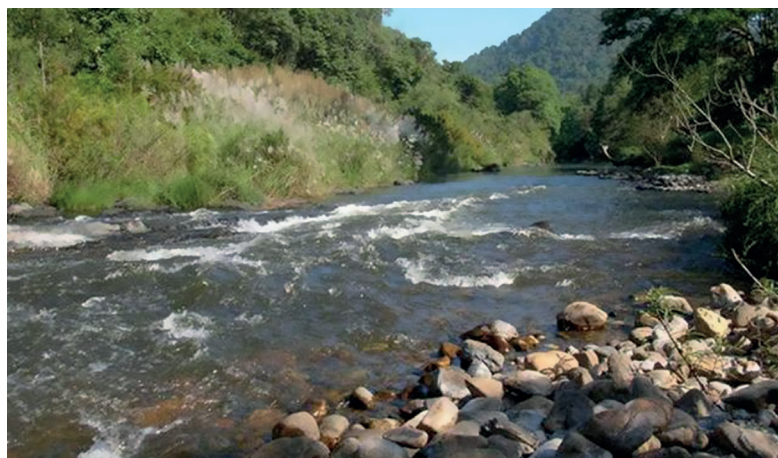


Image: portal.dnp.go.th/Content/nationalpark?contentid=2827

Petchaburi River (upper) panorama

Outstanding Accomplishments



Scientists using an automated machine for whole genome sequencing



Image: rawpixel.com/image/2288547

Thailand Aims to Develop “Genomics Medicine” to Treat 5 Disease Groups

“Genomics Medicine” or “Precision Medicine” is a guideline for patient care. This method applies genetic information with data on the environment and lifestyle that are specific to each patient. This can provide a precise diagnosis and selection of the most appropriate treatment for each patient. In treating certain types of diseases such as cancer, rare diseases, tuberculosis, etc., Genomics Medicine will increase the efficiency of care and treatment. The method can target certain cancer genes to prevent cancer, and eliminate drug allergies. Targeted treatment increases the rate of recovery of patients. In the future, precision medicine will play a role in the health of the population in utero, throughout infancy and childhood, on to adulthood and death. The goal is creating good health for the population.¹

Thailand currently has an **“Integrated Genomics Thailand Action Plan 2020–2024”** to support the creation of a genetic database of 50,000 Thais to apply in medical and public health. The goal is to elevate the country’s medical service system to a new standard, and in a way that people have access to quality. The Cabinet has assigned the Ministry of Public Health (MOPH) as the main agency to spearhead this initiative. The Health Systems Research Institute (HSRI) will be the central unit to drive the Genomics Action Plan. The Eastern Economic Corridor Office of Thailand (EECO) will promote investment in the medical industry. The Thailand Science Research and Innovation (TSRI) will support the research budgets.²

At present, Thailand has focused on developing research in genomics medicine for five disease groups, namely cancer, rare diseases,

infectious disease, non-communicable diseases, and drug allergy patients. The HSRI is providing support as follows:

- 1 | Research for the development of new knowledge to develop treatments, drugs, and assays in the five disease groups.
- 2 | Research to develop service systems, such as predictive outcomes and drug group selection for lung cancer patients, screening for cancer that is inherited in families, genetic code analysis in infants with severe epilepsy, etc.
- 3 | Diagnostic research to advise patients, conduct risk assessment, treatment planning in rare cancer patients and patients with rare immune hereditary diseases (periodontitis), neurofibromatosis, etc.
- 4 | Development of a genomic database system for gene analysis and interpretation among patients with colorectal cancer, brain cancer, ovarian cancer, chronic disease patients in Thailand including the development of a database on emerging drug-resistant bacteria and rotavirus that causes diarrhea in humans and mammals, etc.
- 5 | Infrastructure development support for research, and providing genomics medicine. The Department of Medical Sciences of the MOPH is responsible for extracting DNA, and the HSRI will contract with the private sector to provide whole genome genetic decoding services by setting up a genomics medical testing service center at Burapha University. The National Science and Technology Development Agency will develop information systems for analyzing large genomic databases.³³

In the future, Thailand is expected to be able to develop personalized medicine. Thais will be able to check what their genome looks like, and assess the chances of getting a serious disease. This will make the diagnosis and treatment of diseases more precise as an important starting point toward the futuristic development of the Thai health system in diagnosing, preventing, treating and enabling access to precision medical services.

Continuing Thai Development of a COVID-19 Vaccine



Image: unsplash.com/photos/2_BqQvSYz1l

Thailand is another country affected by the epidemic spread of COVID-19, and millions of Thais have been infected. In the absence of a quick, affordable treatment for COVID infection, “vaccination” is the best medical weapon humanity has to fight this scourge, and reduce the associated morbidity and mortality. So far, a number of COVID vaccines have been developed. Popular methods include genetic vaccines (also known as mRNA vaccines), a virus-borne vaccine, an inactivated virus vaccine, and vaccines made from part of the protein of the virus. Thailand has been providing a variety of vaccines for COVID-19, including Sinovac, AstraZeneca, Sinopharm, Moderna, and Pfizer products.

Thailand is currently one of the major AstraZeneca vaccine production bases in Asia (i.e., Siam Bioscience Co., Ltd.). AstraZeneca is a vaccine produced with viral vector vaccine technology, which is a method to weaken the virus so as not to be pathogenic, and then inject it into the body to stimulate the natural immune system.

In addition, many Thai agencies have also focused on developing a domestic COVID-19 vaccine.¹ There is a group working on a Protein Subunit vaccine (Baiya Phytopharm Co., Ltd.) together with the Faculty of Pharmaceutical Sciences, Chulalongkorn University. There is another candidate mRNA vaccine being developed at the Chula Vaccine Research Center of the Faculty of Medicine, Chulalongkorn University (ChulaCov19). There are the HXP–GPOVac of the Thai Government Pharmaceutical and the COVIGEN, a DNA-based COVID-19 vaccine (Bionet-Asia Co., Ltd.).²

Dr. Kiat Ruxrungtham, Executive Director of the COVID-19 Vaccine Development Project of the Chula Vaccine Research Center, Faculty of Medicine, Chulalongkorn University has revealed that the results so far indicate that ChulaCov19-vaccinated subjects had a 94% inhibition of protein binding to the spiny group, equivalent to that of the Pfizer. This high antibody rate inhibits all four cross-species strains of COVID-19: alpha, beta, gamma, and delta, and can stimulate T-cell immunity, thereby eliminating and controlling pathogens in the cells of infected people. If successful, that vaccine is expected to be available in 2022. It will be produced from the factory of Bionet-Asia in Thailand, with a production capacity of 30–50 million doses per year.³

The HXP–GPOVac vaccine is an innovative inactivated-virus hybrid type produced with incubation technology similar to that of chicken eggs. The “Influenza vaccine production” has been successful and effectively tested in humans in Phase 1 and 2 trials. This candidate vaccine is entering the next phase of testing (Phase 3) and, if successful, it is expected to be registered with the FDA for use in an emergency. Production is expected to start in the middle of 2022. The “Baiya vaccine” is in the human testing process.

However, due to continuing mutation of COVID-19 and emergence of multiple variants, WHO issued a warning in late 2021 that the spread of the Omicron strain was overtaking all previous strains of COVID-19. Thus, the development of vaccines must be able to cover Omicron and new sub-variants. Therefore, Thailand needs to give importance to research and development of vaccines to address the aforementioned problems.



Advocating for a Tax Policy on Sugar-Containing Beverages: Global Outstanding Achievement Award 2021 for the Thai Department of Health

Image: unsplash.com/photos/QoHEUjRmJc

The Department of Health of Thailand’s Ministry of Public Health (MOPH) received a United Nations award given to an agency or organization at the 76th UN side event on September 22, 2021. The award was given by the **United Nations Inter-Agency Task Force (UNIATF Award) on the Prevention and Control of Non-communicable Diseases**. The award provides honorable mention to agencies or organizations from countries around the world with outstanding achievements in the prevention of chronic non-communicable diseases according to the SDGs framework.¹

Thailand’s Department of Health received this award in the public health category for **Outstanding Contribution to Advocating for Sugary Beverages Tax Policy** to reduce the consumption of sugar in the Thai population. The Department showed empirical evidence of favorable policy outcomes. It is a national leader in working with partners in the public sector, the private sector, and related Civil Society organizations.²

The advocacy effort of the Department of Health and its partners has prompted the Thai government to restructure taxation of sugary beverages in the following ways:

- 1 Overall the price of sugary drinks produced in the country and imported increased by 12.7% and 18.1%, respectively.
- 2 The proportion of drinks with high sugar content on the market have declined; beverages containing more than 10 grams of sugar (but not more than 14 grams) per 100 milliliters had the largest reduction.
- 3 The state garnered increased revenue from beverage tax, compared to total excise tax revenue.

The Thai Health Promotion Foundation (ThaiHealth) is another agency that has participated in advocating for a tax surcharge on sugary beverages. According to the Excise Tax Act B.E.2560, Thailand aims to reduce consumption of unhealthy food and increase healthy food choices that are more accessible and easier to purchase for consumers, leading to behavior change. The goal is that all Thais – but especially the younger generation – learn to eat properly according to nutrition guidelines. The Department of Health has continually spearheaded the campaign to advocate for reduction in excess sugar consumption, for example, through the following measures:

<p>Issuing the Ministerial Regulation that prohibits adding sugar in follow-on formula milk</p>	<p>Advising consumers that they can order beverages with less sugar</p>
<p>Advocating for a soft-drinks-free school policy</p>	<p>Implementing measures to solicit cooperation from industry, for example, by reducing the content of sugar sachets to not more than 4 grams</p>

However, the results of research studies from the Institute for Population and Social Research of Mahidol University in 2020 found that the **Thai population aged six years or older showed decline in consumption of sugary beverages**: The volume of daily consumption of sugary beverages decreased only from 283.6 ml. in 2018 to 275.8 ml. in 2019, or a **decrease of 2.8%**. The group of people aged 60 years or over had the highest reduction in consumption of sugary beverages (7.2%). The beverages with the largest reduction in consumption were canned soda mixes. Consumption for these beverages declined the most (17.7%), followed by herbal beverages (10.0%) and sweetened fruit juices (9.2%).

In 2021, the World Health Organization launched the slogan “COMMIT TO QUIT”, which the Ministry of Public Health of Thailand has adapted to “Quit Smoking, Reduce the Risk, You Can Do It!” At the same time, the Thai Health Promotion Foundation (ThaiHealth) and its network partners have been advocating for Thailand to be smoker-free by supporting tobacco control measures, promoting smoke-free environments, educating the public about the dangers of smoking, promoting behavior modification to quit smoking, referring smokers to addiction treatment services, and promoting access to nicotine-substitution products for Thais who have quit smoking. There are facilities to help smokers quit, such as the Fahsai Clinic, the Volunteer Drug Shop to Quit Smoking, the Quit Smoking HotLine #1600, and campaigns to empower communities to help quit smoking by village health volunteers (VHV), among other approaches.¹

As for the drugs used to help smokers quit, Thailand has been researching a smoking cessation drug called “Cytisine”, which is a natural extract from “Golden Chamchuri Seed” which has properties that help relieve nicotine withdrawal symptoms. The user can relax and not feel irritated or anxious during the smoking cessation process. The Faculty of Medicine of Srinakharinwirot University is collaborating with the Tobacco Control Research and Knowledge Management Center (TRC), ThaiHealth, and the Government Pharmaceutical Organization (GPO) to adapt this herbal treatment for Thailand. The drug was previously used in Europe, and it is considered an effective and safe smoking cessation drug. Therefore, it is a drug that is recognized and supported by the World Health Organization. Currently, research in Thailand is in the process of analyzing the data from sample Thai users of the drug. If the results of the trials are successful, the GPO will apply to register the drug with the Thai Food and Drug Administration (FDA), after which it can be added to the national essential drug list.

Thai-Made Anti-Smoking Drug “Golden Chamchuri Seed”



Image: commons.wikimedia.org/wiki/File:Starr_080531-4752_Albizia_lebbeck.jpg

Flowers and seedpods of golden Chamchuri (*Albizia lebbek*)

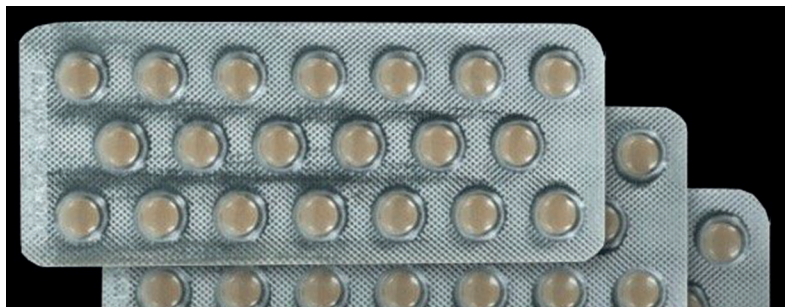


Image: thaihealth.or.th/Content/

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Cytisine tablets

Assoc. Prof. Dr. Suthat Rungruanghiranya is a specialist in respiratory diseases of the Faculty of Medicine Srinakharinwirot University. He said that Cytisine is an effective medicine, and that is safe and cheap. In addition, there is a body of international research supporting that Cytisine is truly effective for smoking cessation. If Thailand can reproduce the results that other countries have reported, then this would be an important step forward in the smoking cessation program in the country. According to preliminary data from the network of smoking cessation counseling clinics, on average in one year, 30–40% of the patients who used this herbal drug were able to quit smoking successfully, while only 10% of those who did not use it were able to quit. People who try to quit tobacco by themselves without drugs have a very low success rate of only 5%. Plus, the previous generation of smoking-cessation drugs or nicotine replacement products were quite costly. The high cost was a barrier to smokers. Thus, in the near future, when Cytisine is added to the national essential drug list, and can be mass produced and widely available across the country, then it can be expected that Thailand will get much closer to its goal of a smoker-free society.²

Feature Article





The Thai Family & COVID-19

It has been two years since COVID-19 has turned everyone's head to face a new world, with a cycle of new crises unfolding again and again with no end in sight.

It can be said that no one can escape the adverse effects of this pandemic, and these effects come in a variety of forms and many dimensions. One thing is for sure: This microorganism has disrupted nearly every society in the world, and about at the same time, and it has changed the world faster and more completely than any new technology ever could.

One subtle, sometimes intangible consequence of COVID-19 is its effect on family. The initial reaction of people to this lethal, invisible, airborne virus was the potential threat to loved ones and family members.

As soon as travel restrictions were posted to the control pandemic, **everyone thought about returning to the family home as the ultimate safe haven.**

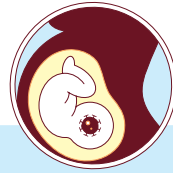
Throughout the two, long years of enduring the pandemic, many people admitted that they had never spent such a long time at home. Before the pandemic, Thai society, especially urban society, created so many activities outside the home and away from family. Work, for example, is an out-of-home activity that often requires a lengthy commute to and from work. Besides, there is dining out and entertainment, often with co-workers or cronies. Younger people in the cities go to school, or after-hours tutoring and on weekends. Young adults go to fitness centers, parks to exercise, or coffee shops and malls just to hang out.

But now, COVID-19 has created a change in the family dynamic in a striking manner.

This special issue of Thai Health 2021 presents the changes wrought by COVID-19 on the Thai family. This chapter looks at the entire life cycle, from birth, child-rearing, pursuing education and livelihood, and family traditions and culture. The author highlights the experience of families in coping with the epidemic in Thailand, and the efforts of family members, communities, societies, and other sectors to work together to adapt to the various challenges and demands.

1

Births during the COVID-19 era



The statistics of the COVID-19 pandemic in the early stages are quite clear: The groups most at risk of infection and death were the elderly and people with chronic diseases. This has the effect of causing people in other age groups, especially children and adolescents. Even during the early stages of the pandemic, pregnant women were not considered a risk group for COVID-19.

In April 2020, during the first wave of widespread outbreaks, there was still very little information about pregnant women infected with COVID-19, and preliminary reports were that it was not as severe as SARS and MERS.¹

However, in August 2021, the Department of Health of the Ministry of Public Health (MOPH) revealed that 2,327 pregnant women had been infected with COVID-19, and 53 had died from the virus.² Later, the Center for COVID-19 Situation Administration (CCSA) announced a worrisome increase in COVID-19 infections and death among pregnant women.

COVID-19 infections and deaths among pregnant women

More than two-thirds of pregnant women infected with COVID-19 did not show symptoms, thus delaying the diagnosis and treatment. Pregnant women with severe symptoms were more likely to be overweight, older, or had chronic diseases such as diabetes, high blood pressure, or heart disease. Still, the mother-to-child transmission rate for COVID-19 was only 2–5%. That said, there was a 15.1%³ chance of a premature baby being born to a mother with COVID-19, and the more severe symptoms of COVID-19 in these women usually appear in the third trimester of pregnancy, requiring some to be admitted to the ICU and be put on a ventilator, and that could be a direct cause of premature birth.⁴

The Department of Health reported that between April 1 and October 16, 2021, there were 4,778 pregnant women infected with COVID-19, mostly diagnosed in Bangkok and vicinity, plus the three southern border provinces. Of these infections, 95 women died, 226 babies were infected with COVID-19 at birth, and 46 died in utero.



Image: phichit.go.th/phichit/index.php/phichit-today-all/10651-64081303

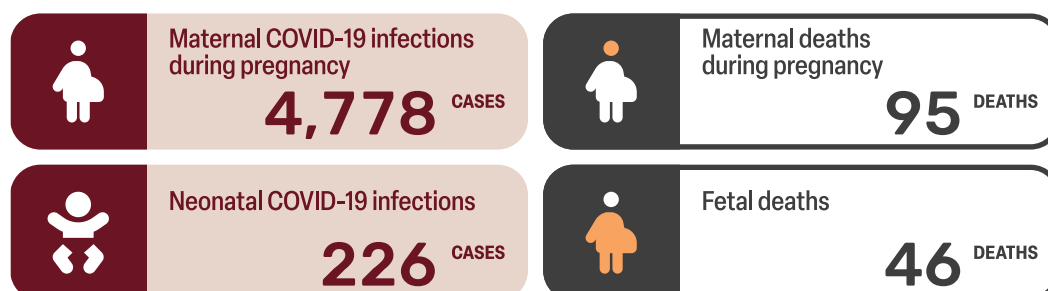
Pregnant women, at 12 weeks onwards, received vaccination at a mall in Phichit Province.

Women age 35 years or over had the highest prevalence of COVID-19 among pregnant women.⁵

Even in uninfected women, the physical symptoms of pregnancy may include fatigue, and shortness of breath. But those symptoms are more pronounced late in the pregnancy or if the woman was obese. Those symptoms might cause some pregnant women to shun face-coverings. Many pregnant women also have to travel by public transport or having to work outside the home. Some of these women are migrant workers who live in dense settlements. Pregnant women were just as vulnerable to infection by an asymptomatic spouse or family members who bring COVID-19 into the household.

For these reasons, pregnant women are more at risk of contracting COVID-19. In addition, the lack of vaccination among pregnant women also made these women more susceptible to infection. Although the government had set a target of vaccinating 300,000 pregnant women per year, Thailand was well short of meeting this target.

Since July 2021, only 74,625 pregnant women had already received at least the



From April 1 to October 16

2021

first dose of the COVID-19 vaccination (25% or one fourth of target population). Of these women, 51,989 had received the second dose, and 526 had received a booster vaccination dose. The highest vaccination rates were in Chonburi, Rayong, Pathum Thani, and Ayutthaya Provinces. The Northeastern Region as a whole had relatively low coverage of COVID-19 vaccination for pregnant women, or about 10%.⁶

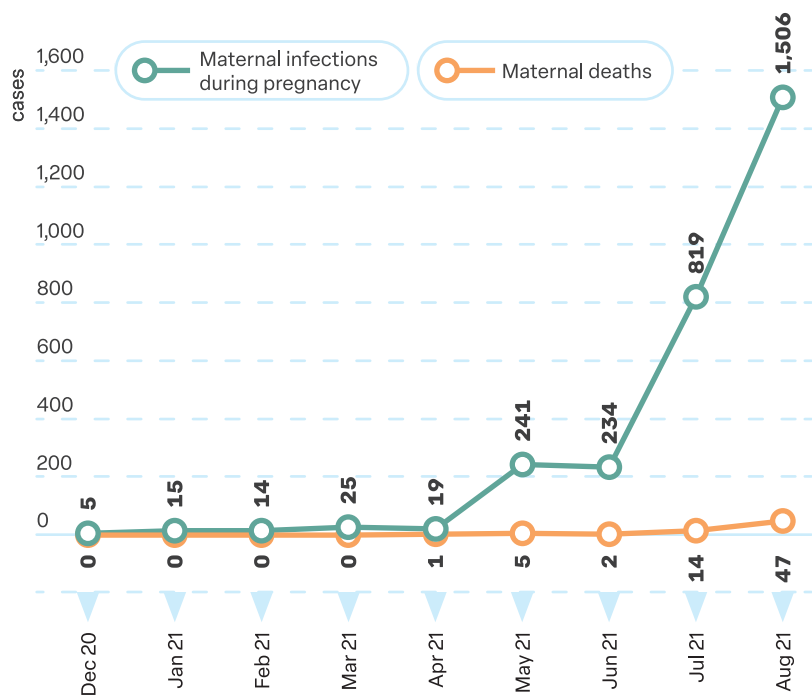
The main obstacle to vaccination pregnant women was the government's policy which prioritized the elderly population. **There was also concern about any side effects the COVID-19 vaccine might have for the pregnant woman and the fetus. There were also questions about which type of COVID-19 vaccine is safest for pregnant women (mRNA or inactivated vaccine), which trimester to provide the vaccination, and the effect of the vaccine on breast milk post-partum. Thailand most had to rely on the results of clinical research in other countries to make policy decisions for Thai pregnant women at risk of COVID-19.**

According to information on the popular Thai chat forum (Pantip.com), a number of pregnant women had expressed their concerns about getting the COVID-19 vaccine. Some post-partum women who had been vaccinated said that they had a normal delivery and no side effects for either themselves or their infant. Other general members of the forum strongly urged the pregnant women to be vaccinated, but admitted that they had no scientific data to make that recommendation. This ambiguity on the web-board probably reflected Thai public opinion generally at the time, and caused consternation among pregnant women, their spouse, and family members about what the right course of action was.

In the meantime, the number of pregnant women infected with COVID-19 had jumped from 234 in June to 819 in July and to 1,506 in August. Of these, 14 pregnant women died in July and 47 in August. As a result, the MOPH established guidelines for pregnant women to prevent COVID-19, and fast-tracked pregnant women infected with COVID-19 to access the following:

Number of COVID-19 infections among pregnant women and women up to six weeks post-partum

December 2020—August 2021



Source: CCSA Press Release on September 3, 2021

1

All hospitals monitoring pregnant women over ten weeks gestation are to vaccinate for COVID-19 those women through the hospital's ANC clinic.

2

If the woman has delivered her infant and returned home, the hospital is to conduct a home visit to administer the COVID-19 vaccine, even if the mother is breastfeeding.

3

If a pregnant woman presents with COVID-19 and does not require an emergency delivery, then the attending hospital is to refer the woman through the normal channels for managing COVID-19 infected patients.

4

If there is a need for an emergency delivery, then the woman should be referred to the nearest hospital with the capacity to perform that service.⁷

In addition, the Department of Health proposed that the Public Health Emergency Operation Center consider issuing a requirement for pregnant women to work from home 100% to prevent the risk of exposure to COVID-19.

Orphans whose parents died of COVID-19

from July 27, 2021 to September 4, 2021



Source: Equitable Education Fund, 2021.

COVID-19 orphans

The millions of deaths from COVID-19 around the world were wreaking havoc on the economic stability of families and household income. These deaths also contributed to surviving relatives to feelings of guilt, loss, loneliness, and depression, which produced long-term effects on their mental health. This burden was, even more, compounded if the family was lower-income as the COVID-19 death only worsened the suffering they already experienced in daily life.

During March 1, 2020 to April 30, 2021, about 1,134,000 children around the world lost their primary caregiver, or at least one parent or grandparent because of COVID-19. Additionally, around 1,562,000 children lost a secondary caregiver, such as an older guardian in the household.⁹

A death in the family “wounds” the dependent child, and increases their psycho-social vulnerability to varying degrees of severity. Each child has different ability to cope with sudden loss of a caregiver, but if a young child loses both parents in a short time period, the effect was particularly devastating. In addition to the physical deprivation and emotional suffering, the child lost a valuable learning opportunity when s/he lost the primary role model in the family and society. Other problems the child may face included housing, poverty, long-term assistance, opportunities to education and good jobs and accessibility of welfare and benefits. That was the case for two sisters ‘Krapook,’ age 11, and ‘Aomsin,’ age 9, whose mother died from COVID-19 infection and father had left the family many years. Before she died, the mother told her children to go live in the state orphanage so as not to be a burden on their other relatives.¹⁰

As a first step, the child who has lost their primary caregiver(s) had to receive proper counseling immediately. A triage approach was used whereby the children who were already mentally strong could receive just enough first aid so that they could cope on their own. That is, a child psychologist was not needed for these youth. However, children who were having trouble coping would need ongoing assistance and, perhaps professional psychological care. Ultimately, the goal was mental rehabilitation and successful reintegration with society. Staff must follow up to help the child adjust and to be a mentor to the foster care providers.¹¹

During July to September 2021, the Ministry of Social Development and Human Security (MSDHS) conducted a survey of 369 orphans whose parent(s) had died of COVID-19.¹² **Fully 180 had lost their father, 151 had lost their mother, 3 had lost both parents, and 35 had lost a primary guardian. The southern region of the country recorded the largest number of orphans (131), 71.54% were age 6–18 years old, and 33.06% were primary school students.**¹³

Many orphans from lower-income families were under pressure to drop out of school and face numerous risks in the future. Thus, it was important to provide assistance to these orphans as soon as possible. For children who have been orphaned due to COVID-19 or economy-related suicide, there is a recommendation for the government to subsidize the education of surviving children through the tertiary level. In addition, teachers need to be coached and trained in helping students who have lost parents or family members to COVID-19. Unless the child is able to cope adequately with the loss, their formal education and learning will suffer.¹⁴

COVID-19 and delayed childbearing among young couples

Getting married and having children is the typical aspiration of young adults. However, the new generation of Thais entering the reproductive ages is trending toward delaying pregnancy, or not having children at all, at least not until the COVID-19 epidemic is under control. Some people may feel discouraged by the uncertainty and safety in various dimensions of living as the world is more connected.¹⁵ Also, the COVID-19 epidemic has resulted in many young workers being unemployed or having financial insecurity.¹⁶ They may have family members with COVID-19 infection or died from it. Thus, many may feel they have to wait before starting a family until their earnings improve.

A study in Europe found that, during the first phase of the COVID-19 pandemic, over half of French and German citizens decided to delay childbearing in 2020, while about 37% of Italians resolved not to have any children at all. They had multiple reasons, maybe economic, social and demographic backgrounds, different policies on family and predictions after the COVID-19.¹⁷

Studies in Thailand indicate that the new generation of young adults, especially Gen Y (born between 1980 and 1997) do not want to have children at all. What is more, many do not even see the need to get married, and may prefer to remain single forever. Over one in seven (15%) said that COVID-19 is the reason they do not want to have a child at this time.¹⁸ Close to half (46%) were concerned that they would not be able to go a hospital for ANC, and three-fifths (61%) said that COVID-19 causing them to re-think having children at all.¹⁹ Most notably, **the number of newborn babies in 2021 dropped below 600,000, which is the first time that has happened in the past 70 years, and part of the cause may be due to the COVID-19 epidemic situation.**²⁰



Image: unsplash.com/photos/-G2lJF_aUws

Birth delivery (New Normal)

Throughout the nine months of pregnancy, the moment of delivery of a healthy live birth to a healthy mother is what everyone has been waiting for.

However, one of the tragedies of COVID-19 is that many pregnant women had no relatives with them, before or after delivery.

In addition, there were many other concerns that kept storming pregnant women during the pandemic. Her first concern might be that she could contract the virus by being in the hospital. Her next concern would be for her unborn child, and whether the newborn would be infected or affected by COVID-19 or the COVID-19 vaccine she recently had.

The US Centers for Disease Control and Prevention (CDC) recommends that any woman who has tested positive for COVID-19 or has risk needs to remain separate from her newborn at least one week post-partum and this is another cause of distress from the delivering woman in the COVID-19 years.

Post-partum women with COVID-19 infection need to take extra precautions not to infect her newborn, in addition to all the other physical, hormonal, and psychological adjustments she had to make after delivery, especially if this was her first child. Normally, new mothers worry about breastfeeding, how to hold their newborns or what to do if they cry. As for COVID-19-infected mothers, it was important to know how to prevent their babies from infection.

In normal (pre-COVID-19) times, the young mother would be advised and assisted by older female relatives on how to adjust to motherhood. However, as noted, this coaching could only be done by remote contact. Being so alone at a time of special need like this only added to the anxiety and stress of the young mother, and that might cause insomnia, sub-lactation, slower recovery, and more severe post-partum depression.²¹

2

Child Rearing



Online learning

How families are coping when school shifts to online learning

The impact that COVID-19 has produced is not only the morbidity and mortality attributable to the virus. In nearly all countries with COVID-19 epidemics, routine classroom learning has been suspended or severely disrupted. One of the very important issues was to continue with the formal curriculum as best as possible and not fall behind.

Shifting lessons to online platforms is one strategy to ensure the continuation of schooling. Still, in many families, the household environment was not suitable for the online classroom. IT equipment and internet connections were too expensive for many families. Some parents had to take leave from work to stay at home to supervise their school-age child(ren) and assist with the learning process. Some simply could not afford to take leave from their jobs and had to leave their children in the care of an older sibling or grandparent. When those parents returned home, they then have to review their child's homework, often late into the evening, and this burden added to the stress that the family was already experiencing. Families with more than one school-age child who was studying online are bound to encounter problems with sharing electronic equipment and Internet connections. Grandparents could not be expected to properly supervising their grandchildren's online lessons as they lack IT literacy.

“ There are **43,060** children who dropped out of school in 2021. ”

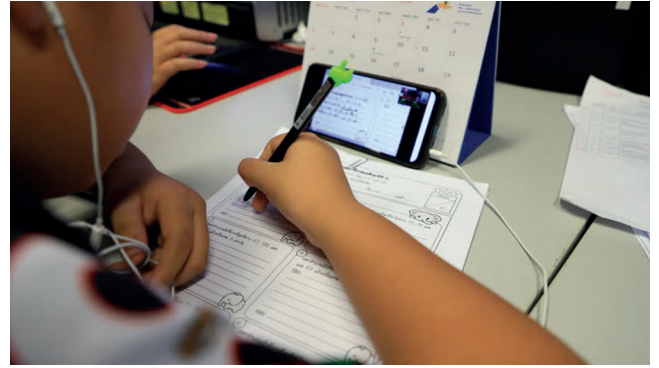


Image: thainews.prd.go.th/news/detail/TCATG210601145111198

A student studying online in Yala Province.

Online learning takes away educational opportunities from children in poor families. Their money is meant for food, not enough for IT accessories and the Internet connection. Every smooth online class relies upon the quality internet package that is more expensive than the minimum wage.

Studies have found that children in lower-income urban families, both in Bangkok and the southern region, tended to drop out of. That is because these families had the higher opportunity cost including learning loss from school closures, reduced class hours and the shift to hybrid class.²²

There are other impacts of online learning. Some students complain that they cannot concentrate during lessons. Many students also do not understand lessons while having many pieces of homework and no one helping with these. They feel lonely and bored due to the lack of in-person social contact with classmates and peers. Others are falling behind and even dropping out of school. All of these stressors can manifest in physical and mental health disorders in children.

Studies in the US found that students become obstreperous, lose their appetite, experience back pain of unknown origin, and have eye strain. Similarly, studies in China found COVID-19 stress and anxiety in school-age children in the same way.²³ Children around the world are falling behind their academic schedule, and this is reflected in declining test scores. In the US, math scores dropped by 50% and reading scores dropped by 30% in some populations of students. Especially for the students from lower-income families, having to stay at home during the day meant that they could not benefit from the nutritious school lunch program.²²

The shift from classroom to online learning in the COVID-19 era has exposed serious inequalities in society. According to the Equitable Education Fund (EEF), in the first academic semester of 2021, there were approximately 1.9 million lower-income students at risk of falling

out of the formal education system, which is a very high percentage compared to the nine million children enrolled in the compulsory school grades. There are 43,060 children who dropped out of school in 2021, with no information on whether they will be able to return. Most were in high school grade 3 (33,710), followed by primary grade 6 (8,699), and then by those in pre-school grade 3 (604

people). The major obstacle to keeping their child enrolled was the loss of family income (an average of 1,094 baht per month or 36 baht per day), and that some parents had to return with their child(ren) to the family home after losing their jobs in the city.

Also, as noted above, the lower-income families are the least equipped to support online learning in the home environment, given the equipment needs, IT know-how, and a stable Internet connection. The EEF estimated that, by the end of the 2021 school year, there would be at least 65,000 drop-outs from the compulsory education system.²⁴ This problem should be one of the top priority agenda items for the country since it cannot afford to leave so many students and families behind.



“ At school, they provide the same food ... for young children and junior high school students. Older students, even their parents, do not know that the school does not receive any subsidy for school lunch. This excludes breakfast, the very important meal for all children as we know. However, 90% of them do not eat it and their teachers know about this suddenly. Therefore, after lunch was distributed to all students, teachers pack the remaining food for poor students to eat for dinner at home ... ThaiHealth and its partners can do more. We know they are trying to help children, but this does not make a difference. Society still does not foresee how equitable education would be achieved. The law enforces education on every child, yet is unable to provide them lunch allowance ... Essential resources for children must be adequately allocated such as breakfast and, travel fees to school. As for orphans, or those from skip-generation families, it is necessary for relevant ministries to have sufficient information to make a decision on intervention. In order to make involved people perceive the difference, society should first understand the importance of child well-being. Still, there are other issues. Micronutrients, for example, are often found in obese children from poor families. They consume excessive carbohydrates because their families want them to be full by eating instant noodles and too much rice. We should not let Thai children live like this. ”

The EEF estimated that the COVID-19 epidemic put over two million school-age youth at risk of dropping out of compulsory education. Even youth who drop out and return later will fall behind their cohort. This is especially important for students completing the last compulsory grade (i.e., high school grade 3). Too many of these students leave the formal education system at that time to find work, and COVID-19 will push them to leave instead of continuing their education because of the economic impact on families. Finally, it is clear to the EEF that the adverse impact of COVID-19 on education of Thai youth has been disproportionately felt by the lower-income portion of the population, and that will just perpetuate the cycle of poverty and disadvantage into the next generation.

Many of the estimated two million children who live in families below the poverty line are probably also living in broken homes, or skipped-generation households (i.e., where the grandparents are raising the school-age children while the parents are working in another province). This further hampers the education of the child because the grandparents cannot be expected to tutor the child, let alone understand the curriculum. For parents living with children, most parents work outside the home, maybe selling at markets, working for hire elsewhere and fishing. It is impossible for them to monitor online study. Some children have to take study leave to work with their parents. The study-leave letter campaign was launched because of this situation.

It will be difficult for children's rehabilitation and result in a K-shape recovery. It means that one group of children will be advanced as they are from moderate-income families that have not been severely impacted by the COVID-19 crisis. The other group or children from poor families will obtain regression or less likely to see progression.

Source: In-depth interviews with the management of the Equitable Education Fund (EEF)

The school drop-out crisis is not only a problem with basic education. It may also impact on economic development of the country. A study in the US conducted by Stanford University estimated that, if Thailand could prevent drop-outs from compulsory education, that would increase the country's gross domestic product (GDP) by 3%, or equivalent to economic returns of more than 228 billion baht per year.²⁴

That said, there are some benefits from online education. For example, students need not get up so early in the morning for the daily commute to school (especially in large cities). Students also learn to be more resourceful in using the Internet for learning through a wide variety of channels. With the student at home all day, the family has more chances to socialize and do household activities together. Having the shyer or weaker child at home prevents them from being bullied at school. However, one recommendation is that online learning should be further developed for skill-enhancement purposes instead of for competition.

During the COVID-19-related school closures and shift to online classrooms, the government was only able to provide a subsidy to families in the amount of 2,000 baht per student. This was to compensate for equipment, electricity, and the Internet connection. However, the red tape involved in actually getting the subsidy was cumbersome and incurred extra costs for some parents.²⁵ The government subsidy for college/university students was 5,000 baht per student.²⁶



ภาพ: eef.or.th/โครงการรณรงค์จดหมายลาครู

A mural from the “Leave Letters for Teachers” campaign, installed at Saphan Hua Chang, Bangkok

“ If the people at home understand what’s needed for proper online schooling, then things should be smooth. However, in my home, the parents or older persons didn’t always understand what I was doing and accused me of playing computer games. When I was doing my homework, they would mock me, ‘Are you gonna get a Ph.D.?’ ”

Communication with the child who is studying online

Online learning forces both students and their parents or guardians to learn new techniques, technology, and systems. The adults in the household need to be especially careful to practice positive communication and moral support to the child who is struggling to keep up with the online curriculum. High expectations and strict control of parents will affect children negatively. Thus, children may be prone to more rebellious behavior than usual.

“If the people at home understand what’s needed for proper online schooling, then things should be smooth. However, in my home, the parents or older persons didn’t always understand what I was doing and accused me of playing computer games. When I was doing my homework, they would mock me, “Are you gonna a Ph.D?”²⁷ (Female student in junior high school Grade 3, accessed on the website: urbancreature.co.)

“These days, my daughter has to take classes online, and I have to follow up to make sure my child is doing everything the teacher assigns. My daughter is in the 6th (primary) grade. I complain to her that I get tired of having to look over her should to make sure she finishes each assignment. But the second I complain, my daughter cuts me off. So, our relationship is suffering as a result.”²⁸ (Posted on the Pantip.com website.)

ThaiHealth has developed a training curriculum for parents/guardians with school-age youth in their care. One of the modules teaches positive communication, and this has been adapted to an online support group during the COVID-19 era. This training is helping to improve relationships in the family and reduce cases of domestic conflict. The results of the training of parents/guardians are quite favorable (73%). The adults learn about focused listening to their child, and refraining from being judgmental or scolding. This is helping reduce stress in the household, especially when parents, children and other relatives have to be in such close proximity throughout the day and night.²⁹

Social interactions of children in the COVID-19 era

The lack of direct interaction with peers and teachers due to online learning is one of the major problems that worries parents and teachers. If the children are at school, they still have time to rest, chat with friends, eat snacks together, run around or do activities with friends. However, when you have to sit and study online, your attention and senses are constantly focusing on an electronic screen. What is more, during their breaks, the youth already gravitate to playing online games, watching cartoons, checking social media, listening to music, etc., and do not engage in physical activities or interact with family members, causing negative effects on both physical and mental health of the youth.

What is worrisome is when children feel unhappy or do not enjoy learning. That could be their mindset or attitude about learning when it has to be done in front of the screen. Many youths will find this online learning to be boring, and that may provoke scolding from the teacher or parents. This negativity could cascade into a general aversion to formal education, and further away from the disposition that learning can be fun and challenging in a good way. This could have long-term effects on the child's intellectual growth and development.³⁰

Kids Help Phone 

 Telefono Azzurro

“ The World Health Organization (WHO) recommends getting at least 60 minutes of physical activity per day. Even before the pandemic, **only 26% of Thai children could attain** the WHO standard of daily physical activity, and that **declined further during COVID-19-related confinement to 17%**. ”

Thus, it is important for all the household members to understand the pros and cons of online learning, and help parents/guardians, and older persons in the household to provide positive reinforcement to the youth. It is therefore advisable to reduce the expectation that children will be able to learn and understand all the content. Online learning may also be more difficult for children who are not yet fluent in reading and writing, who lack self-esteem, and are too shy to question the teacher or authority.

It should also be understood that online learning is not suitable for all children. Online learning should not be seen as the only option for learning. Therefore, parents should be flexible in managing the learning process by using other means. For example, if the child is suffering from a lack of social interaction, the parents/guardians should engage the child more in the discussion of current events, and other non-academic subjects. The family should engage in group activities in the household that are constructive or entertaining. Older persons should read children's books with the school-age youth in the household. If possible, the child should have the opportunity to get out of the household to help neighbors or visit nearby communities. These are ways of helping the child to continue to mature socially, even if it takes time away from the book learning or online lessons.



Image: unsplash.com/photos/tvc5im05pxk

As with access to IT and the Internet, lower-income families will probably be less equipped to support their children with online lessons. Many countries have turned to focus on caring for the mental strength of children during periods of home confinement and school closures. Children who have to remain at home for long periods of time are deprived of social interactions, and that can be stressful in its own right. For example, Canada has a “Kids Help Phone” program that allows children to call in for professional psychological advice. Australia has a Kids Helpline, and Italy has Telefono Azzurro, which helps children with learning disabilities to talk and consult with a mentor or counselor.

In addition, in some Western countries, children from poor families are also given priority. Programs in the UK, Germany and Canada provide stipends for lower-income youth to attend summer school or learning camps. France has a program to add compensation for teachers who take time to provide after-school instruction to help lagging students to catch up.³⁰

Creative space for children

Online learning during COVID-19 means that most children are less physically active than they would be if they attended classes during non-epidemic times. Online learning requires long periods of sedentary behavior since the attention has to be focused on a screen, usually in a sitting position. If this sedentary lifestyle becomes ingrained, it could have deleterious effects that persist into adulthood. ThaiHealth has introduced a learning tool for children which involves independent play, which many families can do at home even when the child is unable to venture outside. Parents can arrange a corner of the house for the children to play independently, using whatever resources are available, such as cardboard boxes, water bottles, or other items. The child should be allowed to play according to their imagination, with a parent or older member of the household keeping an eye on the child, and encouraging physical activity during play. This can also reduce stress and strengthen family relationships.

In addition, parents should encourage children to join in with household chores such as helping with cooking, cleaning the house, tending the garden, etc. Every activity is a potential life-skills learning space for children. In addition, parents must learn to communicate with children creatively. This will make children feel that their home and family are creative, safe, and reliable spaces even in times of crisis.³¹



ภาพ: multimedia.anamai.moph.go.th/video-knowledges/mv-chopa-chipa

A preview of the music video for the “ChOPA & ChiPA Game: New Normal” project

Physical activity of children is an important factor that helps age-appropriate development and good health. The World Health Organization (WHO) recommends getting at least 60 minutes of physical activity per day. Even before the pandemic, only 26% of Thai children could attain the WHO standard of daily physical activity, and that declined further during COVID-19-related confinement to 17%.³² This lack of daily vigorous physical activity can retard the child's development and undermine health. However, parents can and should encourage children to engage in physical activities at home.

The Department of Health, Ministry of Public Health, has proposed a program to promote physical activity and reduce obesity in children through a project called **ChOPA & ChiPA Game: New Normal. Participants develop emotional and social intelligence, physical fitness, and prevention of malnutrition while increasing physical activity, nutritious food and enough sleep along with the main measures to prevent COVID19 disease.** The program promotes physical activities through digital platforms, such online space to help maintain social distance and motivate children to engage in physical activity.³³

That said, COVID-19 containment measures have caused many families to experience economic crises, unemployment, family dissolution, household stress, or mental health problems. Therefore, it is difficult to encourage children's learning or provide a comprehensive creative space for children when the whole household is in dire straits. Children in some families are also at risk of being affected by parental stress, such as being severely scolded, or physically abused. Therefore, it is not easy for every family to be able to provide a creative space for their children; it may be a challenge just to keep the child safe in a hostile family atmosphere.

3

Economic Situation of Families and Earning a Living in the COVID-19 Era



In July 2020, the Thai Consumer Confidence Index, which stood at 50.1, rose for the third month in a row, while the Confidence Index on job opportunities and future income were constantly rising in line with each other. That led various analysts to believe that the lowest point of the Thai economy in the COVID-19 era had passed, and there would be a resurgence of the economy and household incomes at the year's end. Many people hoped for vaccine roll-out and good news in Thailand and overseas.

However, that optimistic vision did not come to pass, due to the emergence of more infectious strains of COVID-19, and delayed roll-out of vaccines, among other obstacles.

All of this has shattered all hopes that things would turn around and come back bright in 2021. Instead, the public is being advised to prepare to live with COVID-19 as an endemic pathogen, and expect cycles of **'openings' and 'closures'** as part of a new way of life.



Image: news.thaipbs.or.th/content/306647

Among thousands of taxis parked in Samut Sakhon Province more than one year.

While the COVID-19 containment measures including the closure of the country to international travel, and the shut-down of most entertainment outlets, surely caused inconvenience for the more well-off members of society. However, the closures or reductions-in-force of manufacturing and industry has had a disastrous impact on the economic situation of millions of Thais in lower-income households.

Declining household income during the COVID-19 era

A report on the situation of Thai society in the first quarter of 2021³⁴ reflected the changes due to the COVID-19 epidemic. Interestingly, the number of employed persons increased from the end of 2020 by 0.4 % to 37.6 million, but was an expansion of employment in the agricultural sector that was absorbing layoffs from other sectors that continued from 2020 over to 2021. By contrast, employment in the manufacturing sector decreased by 2.2%, and 0.7% in the services sector. Employment in the retail sector fell by 1%, and transportation and storage fell by 0.4%. In addition, weekly working hours decreased by 1.8% year-on-year. Many Thai workers returned to the agricultural sector just to face the unreliable weather and lower payments than other sectors.



Table 1: Income and saving of Thai households, 2019

Income decile	Income (baht/month)	Savings (baht/month)	Education (years)	Household Size
1	7,176	-3,890	7.05	3.67
2	10,813	-996	7.00	3.39
3	12,603	29	7.07	3.15
4	14,406	696	7.15	3.00
5	16,546	1,471	7.34	2.90
6	19,035	2,339	7.68	2.77
7	21,831	3,361	8.07	2.61
8	25,470	4,812	8.83	2.42
9	32,270	7,319	10.14	2.28
10	65,533	27,954	12.95	2.03
Mean	25,160	5,616	8.62	2.74

Source: Household Survey, NSO, 2019



Koy (pseudonym) is a woman from Lopburi Province, aged 37, who completed six years of primary school. She is raising three children, aged 12, 6, and 3 years. Due to the COVID-19 containment measures, Koy lost her job and source

of income. Currently she and her two older children are sharing a residence in Bangkok, with four others, including her younger sister, her sister's husband and her father who suffers from paralysis. Koy described how COVID-19 had impacted her family.

“ When I caught COVID-19 I went for treatment. However, the employer told me they were having to lay off some workers, and my name was on the list. I understood their situation, and they gave me the balance of my last month's work. I had no savings. So, each day, I search Facebook to look for jobs. I was able to get some piecemeal jobs such as ironing clothes for others. I can make 500 baht for some ironing jobs but the jobs are sporadic. ”

“ We have to pay rent and utilities in the amount of about 2,500–3,000 baht a month. Currently, my sister is covering that cost for all of us. I wish I could help out, but I have no steady income. I am trying to use as little as possible to get by. Our meals are just a bit of rice, a fried egg, some bland soup, or canned sardines. ”

The main problem right now is that there is only one member of the household earning a steady income, Koy's younger sister who is covering everything for everyone—the rent, the food, the taxi fare to take their father for his monthly medical check-up. Koy has applied to over 10 places for a steady job, and had many job interviews, but no offers yet. She still has hope, though. When the COVID-19 crisis is over, then she should be able to return to a steady job. She has extensive experience working as a cashier for many years.

Koy caught COVID-19 when working as a cashier at a Bangkok shopping mall in May, 2021. At first, she had a sore throat, a runny nose, headache, and fever. She suspected right away that she had COVID-19. So, she bought a self-test kit to confirm she had COVID-19. Her eldest child also started to have the same symptoms. She decided to take him for a free test at the government testing site. They had to get in line at 4 o'clock in the morning, and did not get tested until about 10 a.m.



When they got back, they had to quarantine themselves from the rest of the household. This meant that Koy's sister had to take leave to care for Koy's children. The sister also had to prepare meals but had to leave them on a tray outside the bedroom since they could not risk infecting her. Koy had requested an ambulance to the hospital, but it was three days before one came.

The fact that Koy lost her job meant that she was not eligible to collect the state welfare subsidy of 600 baht per month for each dependent child under the age of seven. That benefit is only for full-time workers whose employer is paying into the Social Security System. That 600 baht per child would really help cover the cost of milk for her children. Koy also did not receive any other welfare. Without money for milk, the children had to get by with a small amount of rice and vegetables for each meal.

“ My youngest child has a congenital thyroid condition, and has to see the doctor at Lopburi Provincial Hospital every other month. Thus, I can't afford to bring that child to live with us in Bangkok. Also, the child might not receive continuous treatment if they came to live with me. ”

Koy's eldest and middle child must study online but because there is only one mobile phone causing the middle man to sacrifice for him to study first. She top up her mobile phone for her child once a week, 89 baht per time, so the signal is good. Then it spins and sounds choppy. So the child did not catch up with his friends.

Koy's youngest child was last seen by the thyroid doctor two months ago, and the child's thyroid level was normal. The doctor said that, if the next exam result is normal (in January 2022), then the child can be taken off the continuous treatment. However, Koy is worried about the travel cost from Bangkok to Lopburi; she does not want to impose on her sister for even more financial help.

Source: In-depth interview with a lower-income woman whose family has been impacted by Covid-19.

In addition, a report on the Social Impact Assessment of COVID-19 in Thailand²² of the United Nations office in Thailand, based upon work carried out by Oxford Policy Management (OPM) and published in July 2020, also reported an average 11% drop in Thai household incomes, poverty in urban areas was 4–6 percent higher than in rural areas. This was due to **an average 18% drop in incomes of urban residents, with Bangkok-based workers experiencing the largest decline. The most affected were private sector workers, especially those with no fixed income or were contract employees, for whom poverty was approximately 20% higher than in the pre-epidemic period.**

The vast majority of workers who suffered from the COVID-19 containment measures were in the informal sector, accounting for 43–54%. These workers are already living at the margins, have lower income and less education than other groups of workers. They could not easily re-tool their limited skill set to pursue alternative occupations during COVID-19. Workers in urban areas are vulnerable to the whims of market forces, unlike farmers who can rely on rural social capital, local resources, and a lower cost of living.

The ILO report on COVID-19 Employment and Labour Market Impact in Thailand³⁵ was published in June 2020, and that report warned that a decline in income among workers in the informal sector would push many of these workers below the poverty line (i.e., 60 baht per day) and doubling the prevalence of the working poor from 4.7% to at least 11% of all workers in the labor force. Mostly, low-skilled workers, in agricultural and non-agricultural sectors, were hit hard.

In the study of the decline in income during the COVID-19 era³⁶ of some informal-sector workers, it was found that the decline in income was 96% for massage salon workers, 93% for barbers/hair salon workers, 82% for general contractors, 77% for those who worked out of their home, 73% for roadside vendors, 72% for trash recyclers, 62% for motorcycle taxis, 61% for regular taxis, and 49% for cleaning service workers.

Due to the COVID-19 crisis, the extreme hardship to earn a living among the low-income population is resulting in a higher number of people living in poverty.

Families with low income, no savings, and mounting debt

The problem that comes with unemployment and the decline in income among these low-income earners is debt. According to a report from the Kasikorn Research Center, Thai household debt in the first quarter of 2021



Suan Dusit Poll

Image: suandusitpoll.dusit.ac.th

was 14.13 trillion baht, accounting for 90.5% of GDP, the highest in 18 years.³⁷

In addition, **the situation of household savings, which are like the “second wind” of the family when income suddenly decreases or disappears, and provide some immunity from economic calamity, is even more worrying.** From the data of the 2019 Thai Household Income and Savings Survey³⁸ prepared by the National Statistical Office (Table 1), it is easy to see that **the poorer the people are, the less ability they have to save. At the same time, household size in lower-income families is larger than the higher-income group.** In addition, the overall savings of Thailand in 2021 surely declined significantly. According to a survey by the Kasikorn Research Center, the savings of households in Bangkok is enough to enable them to get by for three months, while in other provinces (where cost of living is generally cheaper), households could stretch savings for four months.³⁹

From the overview report of commercial bank deposits, the Government Savings Bank Research Center also pointed out that most of the growing deposits are accounts with deposits above one million baht, which accounts for only 1.7% of total deposit accounts, while accounts with less than one million baht (22%) tended to decline.⁴⁰ This data highlights how vulnerable low-income families are to the prolongation of the COVID-19 situation.

Unstable livelihoods and relationships and mental health in the household

A Suan Dusit Poll conducted a survey on April 13, 2021 on the impact of COVID-19 on the well-being of Thai families. The respondents said that the main problem is the uncertain livelihood and finances that lead to other problems in the household, such as relationships and mental health. They reported that the most common problems were debt (75.41%), unemployment (69.95%), and stress/depression (67.19%). The reduced income insufficient to pay more bills is the main source of stress (44.27%), followed by worry about health and fear of infection (20.31%) and job security (11.11%).⁴¹

The Department of Women's Affairs and Family Development reported that, between October 2020 and May 2021, there were 1,492 domestic violence victims, which was significantly higher than during October 2019 to February 2020, with only 91 reported cases.⁴² In March 2020, the government launched the campaign **“Stay home, save lives for the nation.”** More violence cases were reported, with 154 victims compared to 144 victims in February. In addition, the Office of the National Economic and Social Development Council reported a 43% increase in alcohol-fueled domestic violence, although alcohol consumption actually declined during the same period by 2.9%.⁴³

Thus, domestic violence is a silent threat during an epidemic such as COVID-19 that forces family members to remain in the household. Particularly for some members, **home is not the safest place.** In many families, their accommodations are too small to squeeze many people in during the COVID-19 situation.

Government remedies

As noted, the COVID-19 epidemic and harsh containment measures of the Thai government has had a disastrous impact on certain segments of society, but mostly the workers in wage-labor jobs and the non-formal sector. Even though the government has eased the lockdown measures and curfews, there are persistent impacts on the economy both at the macro and micro levels. That said, the government has also introduced a number of measures to soften the impact of COVID-19, including the following:

Measures to aid individuals, families and employment⁴⁴

1

Reduced social security tax by 3% since January 2021, which has been continuously extended until the end of November 2021.

2

Paying compensation and sharing the cost for various expenses. People must register to claim rights under various projects such as “Leave No One Behind” or “Half and Half,” “We Will Prevail,” “Thais Love Each Other,” etc. These campaigns were designed mostly to help the lower-income groups, though any family could apply and qualify for discounts. Other projects attempted to promote domestic tourism and spending, including discounts on hotels, and sales events such as “Shop Well and Get Rebates.”⁴⁵

3

Scheme to help individual retail debtors: The Bank of Thailand, together with financial service providers, has issued relief measures to prevent debt from becoming bad debt, covering credit card loans, car and motorcycle registration pledge loans, car and motorcycle hire-purchase loans, home mortgage loans, and loans with homes as collateral, etc. People could register between May 17 and December 31, 2021.

4

Scheme “Grass-root Empowering Loan:” This was launched on January 15, 2021, with the Government Savings Bank providing loans covering small entrepreneurs, self-employed persons, and family members severely affected by COVID-19.

5

Measures to aid 9 businesses in the highest control area and under the social security system (Sections 33, 39 and 40) to be financially supported since August 2021.

Financial measures to help rehabilitate affected business operators

1

Financial measures

- 1) Providing credit to business operators (rehabilitation loan measure) or soft loans: The Bank of Thailand offered a low-interest loan for five years without charging interest in the first six months.
- 2) Measures to support the transfer of collateral assets to repay debts “Asset Warehousing” for business operators to temporarily ‘rest’ their debt which the debtor has the right to rent and buy back the property in the future.



Image: wangchaphoo.go.th/wcp_main/index.php/2012-05-16-12-15-19/8-news-prachasampan/1990-2584-03-11-2

Poster of the project “Mobilizing the Public to Help Fight COVID-19”

2

We Travel Together project: The government subsidizes accommodation and food expenses for people to use for domestic tourism and supports travel service business operators.

3

Credit measures for investment and increase production efficiency: The Export-Import Bank of Thailand provides credit to exporters and related businesses.

Although the government has several measures to help and rehabilitate those who are affected by COVID-19, there have been many criticisms of these projects and campaigns. For example, many projects do not cover those who have really suffered financially; the projects only provide short-term contingency help. These programs cannot really help the poor and vulnerable groups who are unable to recover from lost jobs and livelihoods. Generally, in order to enroll in such projects, they are required to show support documents, meet criteria and process online. To them, these conditions are not understandable, causing many people to be left out. Some measures are thin and too late to heal people from suffering. For example, water and electricity subsidies could help reduce general expenses by 20–30 baht/person/month.⁴⁶

In addition to the government’s remedial measures, there is also assistance from other organizations and sectors that already support vulnerable groups, such as the Department of Children and Youth Affairs, the Education Equality Fund, the Rajanagarindra Institute of Child and Adolescent Mental Health, and UNICEF which supported centers to help children infected with COVID-19.⁴⁷

In addition, the Office of the National Health Commission worked with partners to implement the project entitled: “Mobilizing the Public to Help Fight COVID-19” with the goal of supporting the state’s main measures, including epidemic control, remedies, health rehabilitation, and economic recovery. At the peripheral level, there is a policy and program to support local networks to form a collective agreement called “Constitution for the fight against COVID-19.”⁴⁸



Family Customs and Traditions

Funerals and cremations during the COVID-19 era

Deaths from COVID-19 infection were limited in most of 2020. The highest number of new cases in that year was 188, on March 22. Cumulative COVID-19 infections through December 31, 2020 were just 7,163 cases, and only 63 COVID-19-related deaths were reported in 2020.

However, the emergence of the Delta variant in late 2020 led to large outbreaks of COVID-19 in 2021, and excess mortality started to mount significantly in mid-2021.

Ratprakongtham Temple in Nonthaburi Province announced that they would perform cremations of COVID-19 deaths free of charge, after news that some temples were refusing cremations of COVID-19 infected persons. The temple offered cremation for nearly 24 hours for days until it needed special big electric-fans to cool down furnaces.⁴⁹ However, the temples that were doing cremations of 4–5 COVID-19 patients per day started to experience overload, such as the case of Khae Nok Temple in Nonthaburi Province, which had to temporarily suspend cremations due to fire damage of the furnace.⁵⁰

News of the heavy use of crematoriums trickled out throughout July and August of 2021 in such places as Bang Nam Chon Temple (Thonburi District of Bangkok), Bang Muang Temple and Lampho Temple in Nonthaburi Province, Siri Charoen Noen Mo Temple in Ratchaburi Province, Krokak Temple in Samut Sakhon Province, and Tha Luang Temple in Phichit Province.



Image: thainews.prd.go.th/RegionNews/RegionNews/Detail/TCATG210905210108620

Cremation in COVID era, Theraplai Suphan Buri Province

In some provinces, the daily death toll remained quite high throughout the year, such as Nakhon Si Thammarat in the southern region of Thailand. A news report on October 14, 2021,⁵¹ said that 18 COVID-19 deaths were reported within two days, resulting in insufficient number of crematoriums. As for Pathum Thani Province, the Provincial Administrative Organization (PAO) had to raise funds from the public for the construction of additional crematoria.⁵²

As for the Muslim deceased, COVID-19 deaths caused the cemetery (Kubor) to become crowded in Pattani Province in August 2021. In the first five days of August, 28 people were reported to have died from COVID-19, most of them Muslims who, according to their religion, must be buried within 24 hours.

The flood of new cases, especially those with severe symptoms, was often beyond the reach of the health system. Every day there were tragic news reports about deaths at home due to COVID-19 and the inability to obtain care in a timely manner, despite having contacted the local hospital and related emergency relief agencies. There were cases of very tragic deaths from COVID-19. A grandparent died of COVID-19 at home and left his infected grandchild to live alone. Another case, three elderly siblings lived alone together, but two already died for six days and the living one was found in extremely exhausted condition.⁵³

Members of the public began to ask in frustration: “How did we get to this point?”

In the COVID-19 era, new guidelines required that any person who died from COVID-19 had to be cremated as soon as possible. This meant that traditional funeral ceremonies had to be foregone in many cases. The Buddhist rites and traditions were not fully allowed, with very few family members and close ones to attend. For fear of infection, monks had to wear PPEs while performing Buddhist rites and helping undertakers.⁵⁴

Funerals of non-COVID-19 deaths had to be shortened and rearranged to comply with social distancing and COVID-19 prevention measures. Even prior to death, when the COVID-19 patient is hospitalized, the Thai tradition of having relatives and friends visiting the patient could not be allowed. **If only necessary, the patient’s family must assign one relative to spend the night beside the patient until discharge. This caregiver could easily become stressed.**

Festivals and traditional celebrations

Thailand has the seventh largest number of public holidays in the world, with a total of 29 public holidays in 2021.⁵⁵ Of these, only six are national ceremonial holidays. The rest are all traditional holidays, and those events are often an opportunity for family members to do various activities together, whether it is Songkran Festival, New Year's Day, Buddhist holy days, etc. There are also many important traditional and sacred days that are not declared as holidays, such as Loy Krathong, Vegetarian Festival, Christmas, Islamic New Year, Chinese Ching Ming Festival, etc. On these holidays, **family members have a tradition to meet and socialize, to cultivate and nurture kinship connections and traditions at these times. It also stimulates the economy through leisure travel and an extra level of purchasing.**

However, the advent of COVID-19 and restrictions of gatherings and travel, has had an enormous, deflating impact of these annual rituals, rites, and celebrations.

People in general look forward to enjoying festive activities with their family members in New Year and Songkran holidays.

Songkran, the most enjoyable event for many Thais, is the time when family members returning to the family home to pay respects to one's elders. It is the festival full of fun and traditional activities, for example, Buddhist rites in the morning, splashing water on others, parades and pouring water on the hands of seniors.

However, the atmosphere of Songkran in 2020 was the sound of silence, and something that Thais and foreign visitors have never experienced before. Several weeks before mid-April in 2020, the government ordered the suspension of cross-provincial travel, thus, preventing one of the most important activities during Songkran.

While travel restrictions and border closures eased in 2021, the Songkran Festival that year continued to be a muted and lonely affair. Indeed, some provincial governors banned parties or group gatherings of more than the immediate family members. Many elderly themselves did not want young relatives from the city to come to visit for the traditional water blessing ceremony out of concern for catching COVID-19. **In 2020–2021, this has made many of the oldest Thais fret that they may never see the Songkran tradition practiced again in their lifetime.**

Society has tried to adapt and preserve the Buddhist traditions by any means, such as online candle-lighting, live broadcasts of ceremonies, and prayers and sermons on social media channels. As seen on May 6, 2020, on the Visak Day, events were lived online, for example, candle-lit processions at major temples, praying, meditation and Dhamma preaching. Similarly, for Christians, they celebrated Mass online.

For those of the Islamic faith, their traditions are rather strict and do not allow group prayers through online broadcasts. But there was some relaxation of restrictions on praying Jamaah, Friday prayers (Jum'ah), and Eid al-Adha prayers at the mosque.



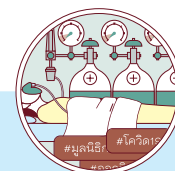
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One of the most important virtues of cultural traditions is the creation of social capital through the inclusion and interaction of people in kinship and across different socio-economic strata of society. These traditions help weave together the members of an increasingly diverse society, live in peaceful coexistence, and exchange, support, and depend on each other. However, fear of an invisible, lethal, airborne pathogen such as the COVID-19 virus, together with the mandates for social distancing, has totally transformed the way that people can celebrate the annual festivals or holidays. With limited participation in events, the need to remain at least two meters apart from the next person, and the requirement to wear a face covering, it is nearly impossible to have close conversations or to revitalize intimate bonds. Even though online channels can play a role in helping maintain the semblance of some festivals, traditions, and rituals, the lack of in-person interactions and close contact greatly weakens the power of society to instill a feeling of togetherness.

While online platform playing a vital role in restoring traditions and ceremonies, the social force has weakened gradually due to absence of social interaction and normal face-to-face gatherings.

5

Society, Community, and the Family in the COVID-19 Era



In 2021, the severity of the situation of the 3rd and 4th wave of COVID-19 outbreaks became more apparent when the number of new cases on April 14 surpassed 1,000 for the first time since the Thai epidemic began, and exceeded 10,000 for the first time three months later on July 17, with 10,083 reported new infections and 141 deaths, also exceeding 100 deaths in a single day for the first time. There was a ray of hope, however, the vaccine roll-out at that time covered only 14,130,489 population and the Thai public health system could not handle increasing COVID-19 cases effectively.

Zen-Dai

“Zen-Dai” (transliteration of the Thai word “thread,” or “yarn”) is a group’s name that first comes to mind when a family member is infected with COVID-19, and there is a need to find treatment and, perhaps, a hospital bed.

Around the time that the group formed, the disparity in access to health care systems was becoming increasingly critical, and it was becoming difficult for ordinary citizens to seek treatment when they developed signs of infection. Too often, people who were not in critical condition were not able to get a hospital bed due to unavailability. These cases were told to wait at home to be contacted by the hospital if a bed freed up. Too many Thais lost their lives waiting for diagnosis⁵⁶ or waiting to receive treatment.⁵⁷ Many who were finally able to be treated were too far along in the disease, but could have been saved if treated.

Kulsub Wattanaphon (“Up VGB”), was a former e-sports athlete, who became infected with COVID-19 and died at home after waiting for nine days to be admitted to a hospital. This was the event that inspired the founders of Zen-Dai to form a group to prevent this from happening to anyone else. It was based on the principle that there are thousands of Thai who have a private car or pick-up, a cell phone, some spare time, and a volunteer mind-set to help others who cannot find urgent diagnosis and care for COVID-19.

Wet Nurse “Ejan”

The “Ejan” Facebook page is a famous page that reports crime news and has more than 11 million followers, which is the equivalent of a nationwide mass media outlet. Thus, this page has the potential to influence a vast segment of society once it takes on an issue of importance.

Ejan has become a huge link connecting the assistance of individuals and social organizations to those affected by the COVID-19 pandemic in the most seamless and efficient process.

The webpage acts as an intermediary to connect COVID-19 sufferers with clinical assistance.

For example, the 7-Eleven convenience store chain has teamed up with Ejan to donate oxygen concentrators, and personal protective equipment (PPE) kits for people with disabilities and other marginalized populations. Ejan collaborated with the Nan PAO, the Phetkasem Foundation, and network partners in Nan Province to distribute survival kits to families whose breadwinner has lost their job. Ejan collaborated with the Dos Life Company to provide 1,000

field beds; with the EPG Company and Triple I transport company to deliver boxes to 500 needy families; with the Poh Teck Tung Foundation to deliver ready-to-eat meals; with the CP Ram Company to assist persons in home-isolation with COVID-19, through home-based X-Ray and telemedicine services. The project provides oxygen concentrators to use at home, ready-cooked meals, and other household necessities.

The Ejan webpage also coordinated a program for nursing mothers who were infected with COVID-19. This project was given the title “Mae Nom Ejan “ (or Ejan Wet Nurse) and is one of the most discussed projects on this social media site.

The project was the brainchild of the Paveena Hongsakul Foundation for children and women who wanted to provide infant formula to infected mothers with newborns and infants. The Foundation collaborated with the Ejan webpage to solicit donations and deliver these to eligible mothers.⁵⁹

Zen-Dai was founded by Chris Potranan, a former Bangkok MP, along with Up VGB’s brother who met when attending Up’s funeral and brainstormed the idea of the group. Many other persons quickly joined, such as Naritat Sribunruang, Apiwat Dansrichanchai, Phuwakorn Srinian. **“Zen-Dai” is metaphor for having a link to a source of help during the COVID-19 crisis. The group took proactive action to ensure that infected individuals would be transferred to a clinical facility for treatment as soon as possible.**

Within the three months since its inception, from two volunteers at the beginning, Zen-Dai had recruited 100 volunteers to operate a phone bank to take calls and refer patients. In those first three months, the group received over 2,600 calls for help, transported 2,200 patients for clinical care, and enlisted the support of 5,000 persons for ride-share service. Zen-Dai is supported by donations and equipment from the public and private sectors.⁵⁸



Image: matchonweekly.com/hot-news/article_424244

Zen-Dai van and volunteer conducts a home visit.



Image: bbc.com/thai/thailand-58096985

Mirror Foundation “Oxygen for Life”

#ออกซิเจนช่วยประคองลมหายใจ

#มูลนิธิกระจกเงา

#โควิด19

The Mirror Foundation was formed by five young people who were involved in political movements in the wake of the coup of the National Peace Keeping Council (NPKC) in late 1991. All five continued the ideology of social work under the name “Mirror Art and Culture Group” with support from the Komol Keemthong Foundation. There are three main missions of the Foundation: “Creating people; Creating innovations; and Creating change.” The initial strategy was to build upon popular cultures, such as theater and the arts to organize children and youth camp activities in different parts of the country.

Over time, the Foundation diversifies into support for reading, sharing clothes, holding community drug treatment camps, recruiting volunteer teachers for service in rural areas, disaster relief, etc., However, the Foundation is best known for activities related to helping children and youth in various forms, such as searching for missing children, conducting anti-human trafficking campaigns to help tribal children, mobilizing a campaign to end the child street-beggar cartels, and provide school supplies and computer equipment for students.⁶⁰

In the first wave of COVID-19 in 2020, the Foundation started a project to donate items through “Share boxes,” and later with the “Volunteer Visit” project in 2021. **When the caseloads started to mount in mid-2021, and life-support supplies were running thin, the Foundation started to solicit donations of oxygen tanks and oxygen concentrators for COVID-19 patients who were being treated at home. In many cases, all family members were infected.** This was particularly mentioned to the skip generation families. In April 2021 when donations and aids began, no one requested these until mid-May. Then, on July 14, oxygen tanks and concentrators were delivered to homes.⁶¹

“ Demand for oxygen tanks and oxygen concentrators soared after more and more people were hospitalized for critical care, but had to be discharged to continue symptomatic treatment at home. Some patients still needed oxygen due to damaged lungs ”



Images: matchon.co.th/covid19/news_2834999

Mirror Foundation volunteers provide ‘Oxygen for Life’.



Images: dailynews.co.th/news/137664

A famous temple in Khon Kaen Province in the northeast region implored worshippers not to donate votive candles, or light bulbs for the monastery, but to donate consumable supplies to help villagers affected by COVID-19. August 8, 2021.

Community strength to help families in need

The Foundation webpage⁶² reported **that demand for oxygen tanks and oxygen concentrators soared after more and more people were hospitalized for critical care, but had to be discharged to continue symptomatic treatment at home. Some patients still needed oxygen due to damaged lungs and respiratory systems.** Thus doctors highly suggested having oxygen tanks at home. At the peak of the crisis, there was a growing shortage of these life-saving supplies and their prices soared. For daily wage workers, 3,000 baht deposit for one oxygen tank certainly was unaffordable. Not to mention the infection that caused them a huge loss of daily income, oxygen equipment became a far reach.

Since the first wave of the COVID-19 epidemic in 2020, society has expected the community sector to be an important force in helping people cope and alleviate suffering. This is partly because the community is the closest social unit to people and families, whether urban or rural.

In this regard, **the Office of the National Health Commission collaborated with the Community Organizations Development Institute (CODI) and the National Health Security Office (NHSO) to formulate an action plan to strengthen communities in different areas in order to guard against adverse socio-economic and health impacts from people travel to and from cities and homes in the rural areas.** This plan called for allocating budget to boost knowledge and prevention tools with local partners in order to equip communities to cope with the effects of COVID-19, and then help revitalize the communities. This strategy was coined the **“Mobilizing a Citizens’ Constitution to Help the Nation Fight COVID-19.”**⁶³



Image: unsplash.com/photos/-G2lJF_aUws



Images: khaohaitoday.com/143659

In Narathiwat Province in the deep south of Thailand, staff of the funeral management team appealed to the local community to donate supplies for making coffins for the deceased after severe budget shortages due to the excess mortality caused by COVID-19.

This strategy builds upon the potential and strength of the community in adapting the form of assistance to reach vulnerable members of the community in a cost-effective way that is appropriate to the local context. One example is the creation of a holding center to support community isolation at Saphan Temple in the Khlong Toei slum community in Bangkok. In addition, there is career promotion to support the unemployed during lockdowns. The Wang Thonglang community procures medicine and delivers cooked food to families with COVID-19 infected members. The Home Security Network in Chumpae District of Khon Kaen Province prepared hygienic face coverings for members of communities, and set up a fund to gather supplies of rice and dry food to send to comrades in Bangkok. The Northeastern Community Organization Network has been upgraded from a community kitchen to a “15-baht Kitchen” to reduce food expenditures for members. They also created coupons for vulnerable groups worth 100 baht per week to buy food and products in the community.⁶⁴ Sawang Sutharam Temple in Khon Kaen Province advised worshippers to donate dry food and consumer goods instead of votive candles to help those affected by the COVID-19 epidemic.

Community isolation and home isolation: Home or community isolation of the infected or contact cases is one measure to help relieve the burden on hospital beds for non-critical COVID-19 patients. In mid-2021, ICUs around Thailand were becoming filled to capacity, and even general wards were full to overflowing with COVID-19 and non-COVID-19 cases. In the absence of field hospitals, home and community isolation of infected people and contact cases is a makeshift solution to ensure that all people receive some care and attention. Ideally, the community isolation facility would be for the asymptomatic cases and their contacts, and not for the elderly or persons with underlying conditions or NCD that would make them vulnerable to rapid decline in health if they had COVID-19.

Home isolation allows the patient to self-isolate in familiar surroundings with loving relatives to provide primary care and companionship. These COVID-19 patients must not have severe symptoms and have no underlying risks of advanced COVID-19 infection. The NHSO provides support for home isolation to help cover the cost of COVID-19 testing, simple treatment, and equipment, but not to exceed 1,100 baht, and a meal subsidy of not more than 1,000 baht per day for 14 days. Community quarantine is done by designating a location with the consent of the residents to set up a makeshift holding area to monitor a COVID-19 patient’s condition. Community-based Village Health Volunteers (VHV) provide links between the holding area and the local hospital. The VHV also monitors risk behaviour in the community, and ensures that people in self-isolation at home remain for the required 14 days of quarantine.

6



The Flood Crisis at the End of 2021: Compounding the Suffering of Thai Families

With regard to flood disasters in Thailand, the local saying of “Phee Sum Dum Ploy” is probably an exaggeration that literally translates as “When it rains, it pours.” Still, it is unsettling that 2021 was another year in which Thailand experienced lethal flooding, to compound the misery from the rising caseloads caused by new and more infectious variants of COVID-19. There may have been a sense of false optimism as the authorities rolled out the first and second doses of the COVID-19 vaccine, and the Prime Minister himself set the unrealistic goal of “120 days to re-open the country,” i.e., on November 1, 2021.

Heavier than normal rains in the rainy season in late August of that year began to accumulate and cause many areas to experience flooding, especially in Chonburi, Samut Prakan, Prachin Buri, Chachoengsao, and Pathum Thani Provinces. Despite the Thai Meteorological Department reported the same rainfall amount as the last year, people in different areas still believed that this year’s flood would arrive sooner with the more volume than previous years.

People started to panic that 2021 would be a repeat of the 2011 mega-flood disaster that inundated most of Thailand for months. Factories in Bangpoo Industrial Estate in Samut Prakan Province suffered from flash flooding in 2 am. on August 29. Night-shift workers could not leave their workplace as their vehicles were in flood water. Until 4 am., factory trucks began to evacuate workers that lost properties and suffered more stress from the economic hardship.

Residential neighborhoods experienced problems with drainage. The flood rose so quickly at nighttime that they could not move belongings up to safer places. In rural areas, people always faced flash flood from mountainous to lower areas.

The rainy season continued in force throughout August when, on September 9, the tropical storm “Conson” slammed into Thailand, bringing heavy rainfall across all parts of the country.

Then, immediately in the wake of Conson, Typhoon Dian Mu swept through Thailand between September 23 and October 7, followed by the severe tropical storms of “Lion Rock” between October 8–14 and Kompasu during October 15–17.⁶⁵

The Kasikorn Research Center estimated that the flood situation in 2021 affected 31 provinces, 190 districts, 956 sub-districts, and 6,335 villages. The impact on the economy was approximately 25 billion baht or 0.16% of GDP. The damage in the agricultural sector was about 12 billion baht, and in the non-agricultural sector, especially the service sector, the estimate damage was 13 billion baht. The Geo-Informatics and Space Technology Development Agency reported that the flood-affected area covered more than 2,088,263 rai, directly causing at least seven deaths, and damaging 227,470 households.⁶⁶

Flood in 2021



Many of the flood-affected areas were sites of previous flooding. Coincidentally, these were areas that were also declared “Dark red” (eight provinces in the early October) including Nakhon Ratchasima, Lop Buri, Saraburi, Suphanburi, Singburi, Anghong, Ayutthaya and Pathum Thani. In Red sites, there were eight provinces, namely Chainat, Uthai Thani, Nakhon Sawan, Ubon Ratchathani, Chaiyaphum, Khon Kaen, Phitsanulok and Sukhothai. Flood eased in 15 provinces, but not the COVID-19 situation. Four provinces were still grouped in the Dark red, namely Tak, Nakhon Pathom, Prachin Buri and Phetchabun while 11 provinces in the Red group including Chiang Mai, Lamphun, Sisaket, Buriram, Yasothon, Surin, Loei, Sa Kaeo, Chanthaburi, Kamphaeng Phet, and Phichit.

The voices of the affected people are always reflected in the flood news coverage, and **they bemoan the suffering from natural disasters, time after time. The compound calamities of COVID-19 and flooding intensified the economic toll on the most vulnerable members of society. The chances of many of these families regaining their livelihood are fading each day.**

A movement was launched to help flood victims, by and for the community, in collaboration with rescue volunteers, local officials, and soldiers. It was difficult for these urgent relief efforts to maintain full COVID-prevention practices since it was a matter of triage. Many areas had been under water for months, and there were many images of volunteers helping families with elderly or bedridden patients.

At this time, there were also echoes of protest, as to **why the government was not doing more to prevent the recurrent flooding problem.** The floods occur at approximately at the same time of year, and the government has months to plan in advance. Too often, the government prefers tangible short-term measures, but shuns the long-term solutions.

People questioned about the water management project (of 350,000 million baht) in 2012 that was turned into the Water Resource Management Strategy for 2015–2026 that could barely prevent and solve disasters.⁶⁷

Thus, Thai families and communities must remain vigilant for the “dark phantom” of natural disaster, that is sure to revisit, sometime in the near future.

Over the past two years, COVID-19 has caused immense changes for family members of all ages, and across all stages of life, starting at birth, through compulsory education, vocations and livelihoods, ageing, and death. What is more, many of the traditions and ceremonies that have been practiced over countless generations to mark these life stage milestones and solidify family and community have had to change to suit the demands of the COVID-19 virus.

These changes are challenging relationships within Thai families and splintering parts of Thai society. Still, the Thai social bonds are strong, and families who can make it through until COVID-19 becomes endemic (i.e., not an acute threat) will rehabilitate and find a way to thrive once again.

In the unfrequented COVID-19 crisis, Thai society has benefited from the compassion and cooperation of family members and volunteers in society to reach out, embrace, and alleviate suffering, knowing that, one day, they may need similar help from others.

At the same time, it is the grassroots and vulnerable in society who usually bear the immediate and most severe impacts of natural disasters such as an epidemic and flooding. Those people have the least capital for self-defense, and COVID-19 has shone a spotlight on the gaping inequalities that persist in Thai society. The ultimate path is to address these inequalities to strengthen society as a whole, since the ability to cope and prevail will be much more likely to succeed when everyone has a more equal stake in the future prosperity of the society and economy of the country.



Criteria for the 2022 Thai Health Report

Part 1 Health indicators

Process of consideration

- 1) Selection of key demographic indicators was conducted by the Steering Committee in consultation with the Project Team.
- 2) Contacting experts for the various indicators which have credible sources of data which are tabulated on an annual basis, in order to reflect the latest situation.
- 3) Specify the time frame for writing the report: The Working Group for each of the main indicator sections are informed of the guidelines for content, the objectives of each indicator section, and preliminary deadline for assembling the relevant content.
- 4) Drafting the presentation of the data for the health indicator.
- 5) Convene a brainstorming session to review the draft indicator sections for appropriateness, completeness of content, and lack of redundancy with other sections. The review is then submitted for consideration to the Thai Health Report Team and the Steering Committee.
- 6) Experts and resource persons read all the Thai health indicator sections, and provide recommendations for improvement.

Criteria for assembling content on the indicators

- 1) Research to find key messages on the section which are to be included, so that the information is assembled in an orderly and logical format.
- 2) Locate the relevant statistics for the indicator, with an emphasis on annual data to show trends over time, including the most recent data to reflect the current situation.
- 3) Emphasize data that can be easily viewed and interpreted by readers of all ages and backgrounds.

Part 2 10 Health Milestones in the year and 4 special achievements to support Thai health

The situation in the Report year comprises a description of the situation for the 10 indicators and the 4 “good practices.” The combined situation sections are referred to in brief as “Key Situation 10+4”. The criteria for selecting the key situations and achievements are as follows:

Criteria for selecting the 10 situations to highlight



- 1) It is an event or situation which is prominent in the Report year or an update of a previous situation, or is a lesson learned for Thai society.
- 2) It is a phenomenon which is having a big and broad impact on Thai health, including issues of security and safety.
- 3) It is a policy with direct health impacts that are clearly visible in the Report year.
- 4) It is a new situation which has not occurred before.
- 5) It is a phenomenon which occurred repeatedly during the Report year.

Criteria for prioritizing achievements

1

The Project Report Team taps the opinions the Steering Committee using a survey form. The survey respondents are asked to score candidates on a 5-point Likert rating scale from 5 (highest) to 1 (lowest).

2

The Team then analyzes the ratings to prioritize candidates for good practice achievements.

Good practices and achievements to promote Thai health

This section highlights successes during the Report year which include inventions, advances in health, and discoveries of benefit to Thai society and individuals generally.



Part 3 Special Topic

The special topic has two features: The topic is target-group oriented and the topic is issue-oriented. Issues and target populations may alternate from year to year. This issue could relate to one of the health milestones of the Report year or one of the health indicators.

Criteria for selecting the special topic

- 1) It has policy implications.
- 2) It is of interest/benefit to the population.
- 3) It is an issue with multiple points of view.

Process of consideration

- 1) The Steering Committee meets to consider candidate topics.
- 2) The Report Team specifies the framework of the section.
- 3) The Team contacts experts to compile data and information on the special topic.
- 4) The Report Team organizes the relevant information and re-formats it so that it is suitable for public dissemination. This includes verifying the accuracy of the content by expert advisors and resource persons.
- 5) Qualified persons review the draft section and provide recommendations for improvement.

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Thai Health Report 2022

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References

12 Indicators: Impact of COVID-19 on the Health of the Thai Population

Indicator 1: COVID-19 Outbreak in Thailand During 2021

- 1 Our World in Data. (2021). *Coronavirus (COVID-19) Vaccinations*. <https://ourworldindata.org/covid-vaccinations?country=SGP>.
- 2 Worldometer. (2021, December). *Daily New Cases in Thailand*. <https://www.worldometers.info/coronavirus/country/thailand/>.
- 3 Worldometer. (2021, December). *Daily New Deaths in Thailand*. <https://www.worldometers.info/coronavirus/country/thailand/>.
- 4 Worldometer. (2021, December). *Total Coronavirus Cases in Thailand*. <https://www.worldometers.info/coronavirus/country/thailand/>.
- 5 Worldometer. (2021, December). *Total Coronavirus Deaths in Thailand*. <https://www.worldometers.info/coronavirus/country/thailand/>.

Indicator 2: Health Behavior

- 1 Food and Nutrition Policy for Health Promotion Program. (2520). *Impact of the COVID-19 pandemic and social measures on food security of lower-income people in Bangkok*. Nonthaburi: International Health Policy Program Foundation.
- 2 Research Center for Social and Business Development. (2021). *A Study of Situation, Behavior and Effects of Gambling in Thailand for the year 2015, 2017, 2019 and 2021*. Bangkok: Research Center for Social and Business Development.
- 3 Research Center for Social and Business Development. (2020). *Alcohol risk assessment and behavior survey during the COVID-19 pandemic: Case study of people aged 15 years or over in 15 provinces in all regions (1st-4th rounds)*. Bangkok: Research Center for Social and Business Development.
- 4 Research Center for Social and Business Development. (2021). *Alcohol Consumption Behavior Survey: Economic impact and health behaviors during the COVID-19 pandemic: Thais age 18 years or over in 15 provinces (2nd round)*. Bangkok: Research Center for Social and Business Development.
- 5 Thailand Physical Activity Knowledge Development Centre. (2021). *Report on Thailand Adequate Physical Activity Survey, 2012–2021*. Nakhon Pathom: Institute for Population and Social Research.
- 6 National Statistical Office. (2018). *Cigarette Smoking and Alcoholic Drinking Behavior Survey in 2017*. Bangkok: National Statistical Office.
- 7 National Statistical Office. (2021). *Executive Summary 2021 Population Health Behavior Survey*. Bangkok: National Statistical Office.

Indicator 3: Physical Health

- 1 Health Data Center. Information and Communication Technology Center, Ministry of Public Health (2021). *Mortality from drowning*

among children under age 15 years in 2021. Health Data Center. https://hdcservice.moph.go.th/hdc/reports/report.php?source=pformatted/format1.php&cat_id=491672679818600345dc1833920051b2&id=456bd894231700173a89544c1de3c9bf.

- 2 Health Data Center. Information and Communication Technology Center, Ministry of Public Health (2021). *Health Status 2021: Standards Reporting Group*. Health Data Center. <https://hdcservice.moph.go.th/hdc/main>.
- 3 National Economic and Social Development Council. (2021). *Quarterly Social Outlook*. <https://www.nesdc.go.th/main.php?filename=social>.
- 4 National Statistical Office. (2017). *Health and Welfare Survey 2017*. Bangkok: National Statistical Office.
- 5 National Statistical Office. (2019). *Health and Welfare Survey 2019*. Bangkok: National Statistical Office.
- 6 National Statistical Office. (2021). *Health and Welfare Survey 2021*. Bangkok: National Statistical Office.
- 7 Islam, N., Jdanov, D. A., Shkolnikov, V. M., Khunti, K., Kawachi, I., White, M., Lacey, B. (2021). *Effects of covid-19 pandemic on life expectancy and premature mortality in 2020: time series analysis in 37 countries*. *BMJ*, 375, e066768. doi:10.1136/bmj-2021-066768.
- 8 The Economist. (2021, December 30). *COVID-19 data: Tracking COVID-19 excess deaths across countries*. <https://www.economist.com/graphic-detail/coronavirus-excess-deaths-tracker>.

Indicator 4: Mental Health

- 1 Ministry of Digital Economy and Society. (2021). *Anti-Fake News Center's Report for January 1–December 31, 2021* <https://www.mdes.go.th/storage/contents/file/igepoZA0hndm9s5uZoQ5Wz3piXDR5fkrLzue6kxy.pdf>.
- 2 Health Data Center. Information and Communication Technology Center, Ministry of Public Health (2021). *Access to mental health service – number of people with suicidal attempt in 2022*. Health Data Center. https://hdcservice.moph.go.th/hdc/reports/report.php?source=pformatted/format1.php&cat_id=ea11bc4bbf333b78e6f53a26f7ab6c89&id=9d5bb9d13241e845d4f338f2df75d042.
- 3 United Nations. (2020). *Preliminary report on the impact and needs of children and youth in the COVID-19 situation 2020 19*. <https://www.unicef.org/thailand/th/media/4031/file>.
- 4 Jenkins, E. K., McAuliffe, C., Hirani, S., Richardson, C., Thomson, K. C., McGuinness, L., Gadermann, A. (2021). *A portrait of the early and differential mental health impacts of the COVID-19 pandemic in Canada: Findings from the first wave of a nationally representative cross-sectional survey*. *Preventive Medicine*, 145, 106333. <https://doi.org/10.1016/j.ypmed.2020.106333>.
- 5 Mongkhon, P., et al. (2021). *Exposure to COVID-19-Related Information and its Association with Mental Health Problems in Thailand: Nationwide, Cross-sectional Survey Study*. *Journal of medical Internet research*, 23(2), e25363. <https://doi.org/10.2196/25363>.

- 6 Pungpapong, G. and Kalayasiri, R. (2021). *“Depression and Anxiety Plus Levels of Stress among Secondary School Students during the COVID-19 Lockdown: an Online Cross-Sectional Survey”*. *Journal of Health Science and Medical Research*. <https://doi.org/10.31584/jhsmr.2021824>
- 7 Tableau Public. (2564). *Survey on mental health problems in Thailand, Department of Mental Health*. <https://public.tableau.com/app/profile/atprogrammer/viz/MHCI/Dashboard1>.

Indicator 5: Access to Health Services

- 1 Health Data Center. Information and Communication Technology Center, Ministry of Public Health (2021). *Access to services for ANC and MCH in 2021*. Health Data Center. https://hdcservice.moph.go.th/hdc/reports/page.php?cat_id=1ed90bc32310b503b7ca9b32af425ae5.
- 2 Health Data Center. Information and Communication Technology Center, Ministry of Public Health (2021). *Childhood vaccination coverage 2021, Health Data Center*. https://hdcservice.moph.go.th/hdc/reports/page.php?cat_id=4df360514655f79f13901ef1181ca1c7.
- 3 Number of outpatients receiving dental services in 2021. Health Data Center. https://hdcservice.moph.go.th/hdc/reports/page.php?cat_id=fc73b811eb6d9206e7e5baf8ad20d7b9.
- 4 Satchanawakul, N., Amornpradapkul, N., Llangruenrom, N., Charureungpaisal, W., & Pungpung, S. (2564). *Survey of well-being and needs for services and care for low-income seniors during and after the lockdown due to COVID-19 in Thailand 2021*. Nakhon Pathom: Institute for Population and Social Research.
- 5 National Blood Center, Thai Red Cross Society. (2021). *Number of units of blood from blood donations in 2021, Bangkok: National Blood Center, Thai Red Cross Society*.
- 6 National Statistical Office. (2011). *Health and Welfare Survey 2011*. Bangkok: National Statistical Office.
- 7 National Statistical Office. (2013). *Health and Welfare Survey 2013*. Bangkok: National Statistical Office.
- 8 National Statistical Office. (2015). *Health and Welfare Survey 2015*. Bangkok: National Statistical Office.
- 9 National Statistical Office. (2017). *Health and Welfare Survey 2015*. Bangkok: National Statistical Office.
- 10 National Statistical Office. (2019). *Health and Welfare Survey 2015*. Bangkok: National Statistical Office.
- 11 National Statistical Office. (2021). *Health and Welfare Survey 2015*. Bangkok: National Statistical Office.

Indicator 6: Education

- 1 National Economic and Social Development Council. (2021). *Budget in a nutshell Bureau of the Budget FY 1992–2021*. https://www.nesdc.go.th/ewt_dl_link.php?nid=3508&filename=social.
- 2 National Economic and Social Development Council. (2021). *Education Statistics: Office of*

the Permanent Secretary, Ministry of Education. https://www.nesdc.go.th/ewt_dl_link.php?nid=3508&filename=social.

- 3 National Statistical Office. (2019). *Household Socio-Economic Survey 2019*. Bangkok: National Statistical Office.
- 4 National Statistical Office. (2020). *Household Socio-Economic Survey 2020*. Bangkok: National Statistical Office.
- 5 National Statistical Office. (2021). *Public opinion poll on the situation of the COVID 19 Pandemic (Adaptation and Digital Accessibility) 2021: Bangkok: National Statistical Office*.
- 6 Asian Development Bank. (2021). *Learning and earning losses from COVID-19 school closures in developing Asia*. <https://www.adb.org/sites/default/files/publication/692111/ado2021-special-topic.pdf>.
- 7 UNICEF & UNESCO. (2021). *Situation analysis on the effects of and responses to COVID-19 on the Education sector in Southeast Asia: Sub-regional report: Bangkok*. Thailand: UNESCO Bangkok Office|UNICEF East Asia and Pacific Regional Office.

Indicator 7: Work Life

- 1 National Statistical Office. (2021). *2021 Labor Force Survey*. Bangkok: National Statistical Office.
- 2 National Statistical Office. (2020). *Survey of the non-formal labor sector: 2020*. Bangkok: National Statistical Office.
- 3 Thailand Development Research Institute. (2021). *Analysis of the impact of COVID-19 on informal workers 2021*. <https://tdri.or.th/2021/01/covid-106>
- 4 Rocket Media Lab. (2021, 23 September). *Food Delivery Rider Survey, March–July 2021*. <https://rocketmedialab.co/database-rider>

Indicator 8: Income

- 1 National Economic and Social Development Council. (2021). *Economic and social data, and social statistics*. <https://www.nesdc.go.th/main.php?filename=social>.
- 2 National Statistical Office. (2019). *Household Socio-Economic Survey 2019*. Bangkok: National Statistical Office.
- 3 National Statistical Office. (2021). *Household Socio-Economic Survey, January–June 2021*. Bangkok: National Statistical Office.
- 4 National Statistical Office. (2021). *Saving of Thai households, 4th Quarter, 2020*. Bangkok: National Statistical Office.
- 5 National Economic and Social Development Council. (2021). *Thai Economic Conditions Q3/21 and Outlook 2021-2022*. https://www.nesdc.go.th/more_news.php?cid=884&filename=QGDP_report.

Indicator 9: Housing and Environment

- 1 Energy Policy and Planning Office, Ministry of Energy. (2021). *Thailand Energy Statistics Report 2021*. Bangkok: Energy Policy and Planning Office, Ministry of Energy.
- 2 Pollution Control Department. (2020). *Thailand Pollution Situation Report 2020*. Bangkok: Pollution Control Department, Ministry of Natural Resources and Environment.
- 3 Department of Health, Ministry of Public Health. (2021). *Data Processing on Infectious*

Waste Management 2021. https://envmanifest.anamai.moph.go.th/?waste_summary.

- 4 Phochakon, P. (2021). *COVID-19 & flood and targeted assistance*. Bangkokbiznews. <https://www.bangkokbiznews.com/blogs/columnist/964622>.

Indicator 10: Family and Community Life

- 1 Department of Health. (2022). *Community Isolation Registration Center*. https://stopcovid.anamai.moph.go.th/dashbord_center/
- 2 Ministry of Interior. (2564). *Center for COVID-19 Situation Administration 2019*. <https://www.moicovid.com>
- 3 Domestic Violence Knowledge Management Center. (2017). *National Survey Report 2017: Thai Domestic Violence against Women and Individuals*. Bangkok: Domestic Violence Knowledge Management Center, Ramathibodi Hospital, Mahidol University.
- 4 Domestic Violence Knowledge Management Center. (2021). *National Survey Report 2021: Domestic Violence during COVID-19*. Bangkok: Domestic Violence Knowledge Management Center, Ramathibodi Hospital, Mahidol University.
- 5 National Institute for Emergency Medicine. (2021). *Information System*. Nonthaburi: National Institute for Emergency Medicine.
- 6 Royal Thai Police. (2021). *National criminal offense statistics*. Bangkok: Royal Thai Police.
- 7 National Statistical Office. (2020). *2020 Household Information and Communication Technology Use Survey*. Bangkok: National Statistical Office.

Indicator 11: Transportation and Communication

- 1 Division of Tourism and Sports Economy. (2021). *Tourist Statistics 2021*. Bangkok: Office of the Permanent Secretary, Ministry of Tourism and Sports.
- 2 Injury Information Cooperation Center. (2021). *Deaths from road accidents in Thailand in 2021*. Nonthaburi: Department of Disease Control, Ministry of Public Health.
- 3 National Statistical Office. (2020). *2020 Household Information and Communication Technology Use Survey*. Bangkok: National Statistical Office.
- 4 Bureau of Energy Policy and Planning Ministry of Energy. (2020). *Thailand Energy Statistics Report 2020*. Bangkok: Bureau of Energy Policy and Planning Ministry of Energy.

Indicator 12: Participation

- 1 Public health information system, Department of Health Service Support, Ministry of Public Health (2019). *National VHV report 2019*. <https://www.thaiphc.net/new2020/content/1>
- 2 Office of the Election Commission. (2021). *Election Statistics 2021*. https://www.ect.go.th/ect_th/news_all.php?cid=13&filename=
- 3 National Statistical Office. (2021). *National Reform Plan 2021, Citizen Participation Survey 2021*. Bangkok: National Statistical Office.
- 4 National Statistical Office. (2021). *Public opinion poll on the situation of the COVID-19 pandemic (Adaptation and Digital Accessibility)*. Bangkok: National Statistical Office.

- 5 National Economic and Social Development Council. (2021). *Economic and social data, and social statistics*. <https://www.nesdc.go.th/main.php?filename=social>.

10 Outstanding Health Situations

COVID-19 and “Work From Home”: What is the Impact?

- 1 What is a Lockdown? Meaning of Lockdown. (2021, 9 July). Prachatai. <https://mthai.com/campus/145668.html>.
- 2 ‘Lockdown’—A popular policy whose effectiveness remains unclear. (2021, 3 August). The Momentum. <https://themomentum.co/economiccrunch-COVID19-lockdown>
- 3 Narongkon Manochanphen. (2021, 5 January). Survey of ‘lockdowns’ in response to the latest wave of COVID-19. The Standard. <https://thestandard.co/explore-lockdown-countries-tackle-latest-coronavirus>
- 4 Reuters Staff. (2021, January 4). Germany heading towards extension of hard lockdown. Reuters. <https://www.reuters.com/article/us-health-coronavirus-germany-idUSKBN299112>
- 5 Declaration of a state of emergency in every locality throughout the Kingdom. (2020, 25 March). Government Gazette. Volume 137, special chapter 69 d., page 1.
- 6 Hathaikan Trisuwan. (2020, 2 April). Coronavirus: COVID-19 statistics. How has Thailand changed after the promulgation of the Emergency Decree? Weekly Report. BBC Thai. <https://www.bbc.com/thai/thailand-52130662>
- 7 Lockdown Bangkok and Vicinity. 12 July: The Prime Minister announced that he would not receive a salary for 3 months. (2021, 9 July). BBC NEWS. <https://www.bbc.com/thai/thailand-57773493>
- 8 Summary of lockdown measures starting 12 July 2021. (2021, 9 July). Daily News Online. <https://www.dailynews.co.th/news/38036/>
- 9 Compare Lockdown 2020 vs Lockdown 2021 without announcing the word Lockdown. (2654, July 31.). Spring News. <https://www.springnews.co.th/news/815048>
- 10 When many countries begin to relax the lockdown measures, is it really safe? (2020, 20 April). Workpoint Today. <https://workpointtoday.com/lockdown-ease-COVID19>
- 11 Center for COVID-19 Situation Administration: A group chaired by the Prime Minister has agreed to “relax the lockdown” phase 5, to be effective from 1 July 2020 onwards. The conditions in businesses, activities in the lockdown relaxation measures Phase 5 have the following important conditions:
 - 1) Open all schools
 - 2) Department stores, shopping centers, community malls can stay open no later than 10 p.m.
 - 3) Convenience stores can open 24 hours
 - 4) Entertainment places, pubs, bars and karaoke shops, etc., may stay open no later than 24.00, and patrons must be socially distanced by 1 meter. Groups should not share tables with other groups. Employees are to wear sanitary masks at all times. The establishment is to have good air circulation. Patrons are to sign in and out using the Thai Chana app.

- 5) Massage parlors can re-open for service. Masseuses must wear a hygienic mask at all times, except while taking a shower. There must be enough hand-washing stations, clean rooms, bathtubs, toilets, and sanitation of frequently touched surfaces before after service.
- 12 Many places have been “freed” from lockdown measures, but still remained in a category of “highest control” such as restaurants, shopping centers, department stores, community malls etc. These can remain open until 8 PM. All places must be practicing standard prevention measures according to the “COVID-free” guidelines. There are also many businesses that can be opened conditionally, such as beauty salons, barbershops or hairdressers, which can serve no more than one person per hour. Massage parlors can only provide foot massage. For sports stadiums and parks, indoor sports arenas that are well-ventilated may stay open only until 8 pm. Sports events are not allowed to have spectators in the stadium and must limit the number of people who participate to only those who are essential.
- 13 COVID-19: Understanding the measures to relax the lockdown cycle. (2021, 1 September). BBC News Thai. <https://www.bbc.com/thai/thailand-58395860>
- 14 COVID-19: NESDB reveals that in the first quarter of 2020, almost 400,000 people became unemployed. (2020, 28 May). BBC News Thai. <https://www.bbc.com/thai/international-52829935>
- 15 Thorstensson, Esra. (2021). The Influence of Working from Home on Employees’ Productivity Comparative document analysis between the years 2000 and 2019–2020. [Independent thesis Basic level (university diploma)]. Karlstad Business School
- 16 PricewaterhouseCoopers. (2022, 23 January). In Wikipedia. <https://en.wikipedia.org/wiki/PricewaterhouseCoopers>
- 17 Saowarat Rattanakhomfu and Methawee Ratchatavichin. (2020). The impact of WFH (Work from home) during COVID-19: A case study of TDRI. TDRI. <https://tdri.or.th/2020/05/impact-of-working-from-home-COVID-19/>
- 18 Work From Home: The way of working in this era is still in search of a work-life balance. (2021, 4 August). Kasikorn Research Center. <https://kasikornresearch.com/th/analysis/k-social-media/Pages/WFH-FB-04-08-21.aspx>
- 19 WFH could adversely affect health as follows:
- 1) Overwork: This may result in less self-care; lack of enough rest that the body needs; inability to partition work time and personal time; lack of absolute relaxation; accumulated fatigue may develop into ‘burnout.’
 - 2) Stress. Every job is a challenge. However, the challenges build up, and stress accumulates without the individual realizing it. This can trigger mental health problems such as depression, feelings of anxiety about the future, worrying about the things that are yet to come, feeling distrustful of people, and being wary of personal safety.
 - 3) There is an increase in utility expenses such as electricity, water, telephone, and Internet. Some may have to buy a new computer or even receive training to learn new software as part of the WFH regimen.
- 4) WFH requires a high level of self-control and a high concentration of attention. Traditionally, people will tend to view the home as a sanctuary to relax and be comfortable – not as an office or work space.
- 20 Phichawee Mekkayai. (2564). 5 mental health problems that may arise during work from home and self-quarantine. iSTRONG. <https://www.istrong.co/single-post/possible-mentalhealth-workfromhome>
- 21 Five Tips to Avoid Feeling Lonely When Working Remotely. (2021, August 26). Forbes. <https://cutt.ly/vP3uHe4>
- 22 Department of Mental Health. (2564). The loneliness from working from home. <https://cutt.ly/wP3iwfA>
- 23 Dealing with stress when you have to work from home. (2521, 9 July). Thai Health Promotion Foundation. <https://rb.gy/5odr2p>
- Freeing up Marijuana, Cannabis, and Kratom: Conditions and Impact on the Community Economy**
- 1 Narcotics Act 1979. (1979, 27 April). Government Gazette. Volume 96, chapter 63, pages 50–82.
 - 2 The stewards’ rule on Marijuana. (2005, February 21). Government Gazette. Volume 42, page 356.
 - 3 Krathom Plant Act 1943. (1943, 2 February). Government Gazette. Volume 60, chapter 7, pages 241–243.
 - 4 Onuma Chaiyakit and Ekapong Saranoi. (2021). Problems of legal status of cannabis under the Narcotics Act 1979. *Journal of the Humanities and Social Sciences*. Loei Rajabhat University 3(2), 35–46.
 - 5 Narcotics Act (№ 7) 2021. (2019, 18 February). Government Gazette. Volume 136, chapter 19 Kor, pages 1–16.
 - 6 Narcotics Act (№ 8) 2021. (2021, 26 May). Government Gazette. Volume 138, chapter 35, pages 1–3.
 - 7 Notification of the Ministry of Public Health (№ 424) 2019 Re: Prescribing foods prohibited to be produced, imported or sold. (2021, 25 February). Government Gazette. Volume 138, special chapter 45 Ngor, page 32.
 - 8 Act on the use of the Drug Code 2021. (2021, 8 November). Government Gazette. Volume 138, Chapter 73 A, pages 1–80.
 - 9 Those laws include the following:
 - Narcotics Prevention and Suppression Act 1976
 - Narcotics Prevention and Suppression Act (№ 2) 1991
 - Narcotics Prevention and Suppression Act (№ 3) 2000
 - Narcotics Prevention and Suppression Act (№ 4) 2002
 - Narcotics Act 1979
 - Narcotics Act (№ 2) 1985
 - Narcotics Act (№ 3) 1987
 - Narcotics Act (№ 4) 2000
 - Narcotics Act (№ 5) 2002
 - Narcotics Act (№ 6) 2017
 - Narcotics Act (№ 7) 2019
 - Narcotics Act (№ 8) 2021
 - The Royal Decree on the Prevention of Volatile Substances 1990
 - Act to amend the Act on the prevention of the use of volatile substances 1990/1999
 - Act to amend the Royal Decree on the Prevention of the Use of Volatile Substances 1990 (№ 2) 2000
 - Act Amending the Royal Decree on the Prevention of the Use of Volatile Substances 1990 (№ 3) 2007
 - The Drug Offender Suppression Measures Act, 1991
 - Measures to Suppress Offenders Act Narcotics Offenses (№ 2) 2000
 - Drug Addiction Rehabilitation Act 2002
 - Psychotropic Substances Act 2016
 - Announcement of the National Council for Peace and Order № 108/2014 Re: Treatment of suspects who have committed offenses under the law relating to drugs to enter rehabilitation and care for those who have undergone rehabilitation, dated 21 July 2014
 - Announcement of the National Council for Peace and Order № 109/2014 on Amendments to the Law on Drug Prevention and Suppression dated 21 July 2014.
 - Announcement of the National Council for Peace and Order № 116/2014 regarding amendments to the law on measures to suppress offenders Narcotics Offenses, dated 21 July 2014.
 - Order of the Head of the National Council for Peace and Order № 10/2018 regarding amendments to the list annexed to the Announcement of the National Council for Peace and Order № 108/2014 dated July 25, 2018.
 - 10 “Anutin” announces that the year 2022 will be advocacy for classifying all parts of “cannabis plants” as non-narcotics, and promote alternative crop regeneration (2021, 11 December). *Manager Online*. <https://mgronline.com/politics/detail/9640000122484>
 - 11 Announcement of the Ministry of Public Health Re: Specifying Class 5 narcotics, 2020. (2020, 15 December). Government Gazette. Volume 137, special chapter 290 Ngor, pages 33–34.
 - 12 ONCB insists that “marijuana” cultivation without permission is illegal. (no date). Office of the Narcotics Control Board. https://www.oncb.go.th/_layouts/15/FSBSP2013/NewsDisplay.aspx?NewsID=1650&DisplayScope=internet%20and%20intranet&NewsList=ONCBNews1&NewsListDisplayName=ONCBNews1&ColumnName=Title,image,VisitedCounts,FormatDate,DateCreate&Newssite=https://www.oncb.go.th/&Comment=yes
 - 13 Announcement of the Ministry of Public Health Re: Specifying Class 5 narcotics (№ 2) 2021. (2021, 4 August). Government Gazette. Volume 138, special chapter 176 Ngor, page 45.
 - 14 Draft Kratom Plant Act: “Can be grown-edible-sold” but must be within the framework. (2021, 8 September). iLaw. <https://ilaw.or.th/node/5969>
 - 15 Can “marijuana” become a Thai cash crop?” (2020, January 14). Kasikorn Research Center. <https://www.kasikornresearch.com/th/analysis/k-social-media/Pages/FB-Cannabis-14-01-20.aspx>
 - 16 It can be sold with a bang! Community Enterprise in Uthai Thani grows cannabis, processing boiled-stir-fried and fried products. They are making a lot of money. (2021, June 30).

- Manager Online. <https://mgronline.com/local/detail/9640000063358>
- 17 A famous family joins the cannabis business: “Chearavanont-Thammawattana” establishes a new company. (2021, 21 June). Prachachat Business. <https://www.prachachat.net/marketing/news-693958>
 - 18 Continuing the innovation of cannabis products – “cannabis: the new treasure:” Thai business in the Covid era. (2021, 12 April). Thairath Online. <https://www.thairath.co.th/business/market/2067479>
 - 19 Narcotics Control Division, Food and Drug Administration, Ministry of Public Health. (2020). Handbook for obtaining a cannabis cultivation permit for farmers. <https://www.opsmoac.go.th/chumphon-dwl-files-431091791907>

Exaggerated Food Supplement Ads: How to Fix the Problem?

- 1 Foundation for Consumers. (2021, 30 December). The Foundation reports on the consumer situation in 2018: The number 1 problem is exaggerated advertising. <https://www.consumerthai.org/consumers-news/ffc-news/4302-620124consumerstat.html>
- 2 Foundation for Consumers. (2021, 30 December). ‘Exaggerated advertising’ is the number 1 consumer problem for 3 years in a row. <https://www.consumerthai.org/consumers-news/food-and-drug/4535-640109-consumersituation2020.html>
- 3 Foundation for Consumers. (2021, 30 December). Revealing statistics of complaints in the second quarter of the Foundation found that the problem of exaggerated advertising is still ranked #1. <https://www.consumerthai.org/consumers-news/ffc-news/4368-620108consumerstaticquarter2-2019.html>
- 4 *Cordyceps* mixed with multivitamin B supplement: “Tide Ekphan”. (2021, 31 December). *Workpoint*. <https://www.youtube.com/watch?v=zi0bWOUY0ow&t=50s>
- 5 5 morning news stories on Channel Five. (2521, 31 December). *Cordyceps* mixed with multivitamin B; health care aid. [Video file]. <https://www.youtube.com/watch?v=iKyuzA8CCOw>
- 6 X File 007. (2021, 31 December). *Cordyceps* Multivitamin V5 1618 Revised. [Video file]. <https://www.youtube.com/watch?v=bS7HjDcwWU&t=484s>
- 7 The situation of digital TV when Home Shopping is every screen. (2022, 13 January). *TV Digital Watch*. <https://www.tvdigitalwatch.com/top5-rating-shopping-online-29-08-62/>
- 8 Doctors warn! Don’t eat “*Cordyceps* Extract” continuously: There is risk of kidney failure. (2021, 30 December). Manager Online. <https://mgronline.com/onlinesection/detail/9640000003489> Dr. Mayuree Tangkiatkamjai, Assoc. Prof. of Clinical Pharmacy from the Faculty of Pharmacy of Srinakharinwirot University stated that there are documented cases of Thai older persons who took gold cordyceps extract in the amount of 1 tablet per day for about 1 month, and experienced worsened kidney function. Most returned to normal kidney function after discontinuing the tablets. However, some users developed chronic kidney disease (Stage 3–4), leading to acute renal failure in some cases.

- 9 The court sentenced Yingyong Yodbua-ngam to one year in prison and fined 250,000 baht for the *Cordyceps* case. (2021, 30 December). Bangkok Business. <https://www.bangkokbiznews.com/news/detail/920985>
- 10 Suppress *Cordyceps*: Exaggerated advertising; report the wrongdoing and fraudulent networks. (2521, 30 December). Thairath Online. <https://www.thairath.co.th/business/economics/2022628>
- 11 In such a case, there are previous reports of prosecutions in the past, and there is no need to search for names or addresses. The authorities will send a letter to order the suspension of advertisements with the offender within one day. But the process of submitting a letter to the FDA office for approval to prosecute the offender for fines as required by law encounters red tape and problems with government procedures. For example, the Deputy Secretary-general of the FDA must sign off before proceeding, or the process of criminal prosecution requires that a formal complaint be issued to the investigating officer. The accused has the right to file an appeal for 15 days and present a defense.
- 12 For example, the Food Act of 1979, Article 41, states that whoever wishes to advertise the benefits, quality or properties of food through radio broadcasting, television, movies, newspapers, or other publications or by any other means, for commercial purposes, the sound, images, movies, or texts to be advertised must be approved by the licensor. Once permission is granted, the content can be advertised. Any person who violates Article 41 is subject to penalties under Article 71, and shall be liable to a fine of not more than 5,000 baht.
- 13 In the event that the accused denies committing an offense, the police will collect evidence and investigate the alleged perpetrators. In the event that a company is the alleged offender, then an authorized person of that company will be summoned to be investigated. The general public will be able to report suspect cases to the FDA as well.
- 14 That is to say, in the event that the operator of the broadcasting business or the television business airs content that takes advantage of the consumer as a first offense, the NBTC shall have the power to order the suspension of such content. If the broadcaster or the television business has been ordered to suspend actions that take advantage of consumers and fails to comply with the order, the NBTC shall have the power to levy an administrative fine of not more than 5 million baht, and additional fines not exceeding 100,000 baht per day throughout the time the order has not yet been complied with.
- 15 This is done by providing information, facts, and documentary evidence for consideration. However, if the business is unable to provide information, facts, or refer to academic reports, statistics or data, or is unable to provide reliable documentary evidence in their defense, they shall be deemed guilty of exploiting the consumer public. The process of receiving and considering complaints is in accordance with the NBTC’s announcement regarding the procedures and time periods for considering charges or complaints in the broadcasting

and television business. This can take about 90 days, depending on documents, evidence, examination, investigation, and consideration by the relevant agencies.

Migrant Workers in the Era of COVID-19: Bridging the Divide to Meet the Challenge

- 1 Chronicle of the Old City, Luang Prasert Aksornnit’s edition. (no date). Watcharayan. <https://vajirayana.org/RoyalChronicleoftheOldCity-LuangPrasertAksornnitEdition/RoyalChronicleoftheOldKrungsri>
- 2 The events recorded in the Royal Chronicles of the Old City, Luang Prasert Aksornnit, correspond to the inscriptions of Khun Si Chaimongkolthep and the Royal Chronicles of Ayutthaya, retail editions of the Wachirayan Library. These chronicles mention that Somdej Chao Sam Phraya favored Khun Si Chai Rajamongkol Thep Ekamontree, and the nobles led troops to attack Phimai, Phanom Rung, and Phra Nakhon. After the victory, the army returned with 120,000 captives to Ayutthaya.
- 3 Narongrit Suksawat. (2014). Existence and way of life, traditions, rituals and beliefs of the Thai-Khmer people at Pong Nam Ron District, Chanthaburi Province. [Dissertation Thesis]. Burapha University.
- 4 Sawitree Phisanupong. (2014). Yodya people settled in Burma at Inwa, Amarapura, and Sagaing: A Study of Documentary and Archaeological Evidence. *History Journal*. 39. 93–111.
- 5 Orawin Likitwisetkul. (2022, 8 February). The influence of Ayutthaya art in different cities. In memory of artisans of the “Yodya” lineage. *Arts and Culture*. https://www.silpa-mag.com/history/article_18584
- 6 Recording of Mae Nom Chao Ayutthaya humming a song that is reminiscent of the hometown. *Collection of Ayutthaya Dramatic Arts in Burma*. (2022, 2 February). *Arts and Culture*. https://www.silpa-mag.com/culture/article_78236
- 7 Foundation for the Health and Learning of Ethnic Workers. (no date). Grievances on International Migrant Workers Day 2019. MAP Foundation. <https://www.mapfoundationcm.org/thai/index.php/works-wrapper/public-statements/105-2562>
- 8 Jiraluck Nontarak. (2020, 20 July). A model of friendly service system for foreigners in Thailand: Budget for providing health services for foreigners. *Health Systems Research Institute*. <https://www.hsri.or.th/media/issue/detail/12735>
- 9 Joining forces through a public-private collaboration to develop Thailand’s COVID-19 patient information system. Arm the community-self-assessment to reach the unreachable (no date). Office of the National Health Commission. <https://www.nationalhealth.or.th/th/node/3268>
- 10 Teewat Churat and Kasipat Laddamaneerot. (2021, 16 August). Unveiling strategies for dealing with COVID-19: Lessons from Nakhon Pathom on local cooperation. <https://theactive.net/data/COVID-19-pandemic-case-study-of-nakhon-pathom/>
- 11 For example, the Roman Catholic Church in Bangkok made available the area of St. Joseph Inter-Technology School, Sampran District to

use as the location for the Nakhon Pathom Aunjai Waiting Center with 630 beds, along with covering the expenses for building renovations. Rajabhat University of Nakhon Pathom made available one of its university buildings as a care center for COVID patients, and also sent personnel to the Faculty of Nursing to participate in public health campaigns in the province.

- 12 Samut Sakorn Model' is self-reliant and generous to society. (2021, 6 August). Prachachat Business. (2021, 6 August). Prachachat Business. <https://www.prachachat.net/general/news-729531>
- 13 We have to use the 'Samut Sakorn Model' nationwide. (2021, 16 August). Sethasat Bandit. <https://www.bangkokbiznews.com/blogs/columnist/127981>

Ming Dih Factory Explosion: Lessons From a Chemical Factory Disaster

- 1 The cause of "Ming Dih Chemical" explosion—beware of highly dangerous toxins. (2021, 5 July). PPTV HD36. <https://www.pptvhd36.com/news/%E0%B8%AA%E0%B8%B1%E0%B8%87%E0%B8%84%E0%B8%A1/150889>
- 2 Summary of the timeline of 'Ming Dih factory' since the explosion, fire on July 5, until the next morning. (2021, 6 July). Matchon Online. https://www.matchon.co.th/local/news_2813545
- 3 LIVE: Wanchai Kongkaseem, Governor of Samut Prakan Province: Announcement of progress in case of fire Ming Dih Chemical Co., Ltd. (2021, 7 July). The Reporter. <https://www.facebook.com/TheReportersTH/videos/1457336704615735>
- 4 Summary of the timeline of 'Ming Dih factory' since the explosion, fire on July 5, until the next morning. (2021, 6 July). Matchon Online. https://www.matchon.co.th/local/news_2813545
- 5 Summary of the timeline of 'Ming Dih factory' since the explosion, fire on July 5, until the next morning. (2021, 6 July). Matchon Online. https://www.matchon.co.th/local/news_2813545
- 6 Update!! Factory fire, Soi Kingkaew 21. (2021, 5 July). Jor Sor 100. <https://www.facebook.com/jst100radio/posts/4295461963810671>
- 7 Update!! The fire at the factory in Soi Kingkaew 21. Ibid.
- 8 Styrene Monomer. (2021, 6 July). Pollution Control Department. <https://www.facebook.com/PCD.go.th/posts/4158258134257542>
- 9 By using the Box Model, which uses the drain rate data from the source to be processed together with the meteorological conditions of the area; and calculated from a radius of 3 phases: It was found that, within a radius of 1 km, the concentration of styrene was 1,035 ppm; for a radius of 3 km, it was 86 ppm; and for a radius of 5 km was 52 ppm. The Pollution Control Department studied acute inhalation exposure limit values for styrene, and found that, within a radius of 1 kilometer, the concentration of this substance exceeds the limit tolerance.
- 10 Pollution Control Department calculates the concentration of styrene in the fire area of Samut Prakan Province. (2021, 5 July). Pollution Control Department. <https://www.facebook.com/PCD.go.th/posts/4156836874399668>
- 11 Villagers impacted from the explosion of the Ming Dih factory were bewildered that only received 40 baht compensation (2022, 11

January). PPTV HD36. <https://www.pptvhd36.com/news/%E0%B8%AA%E0%B8%B1%E0%B8%87%E0%B8%84%E0%B8%A1/163102>

- 12 The tragedy of 'Ming Dih' King Kaew factory fire in the community enclave. (2021, 7 July). Prachachat Business. <https://www.prachachat.net/economy/news-707547>
- 13 The tragedy of 'Ming Dih' King Kaew factory fire in the community enclave. Ibid.
- 14 "The Sequence of the Fire and Chemical Explosion from Ming Dih Chemical Co., Ltd." by Sumetha Wichienphet, former director of the Chemical Emergency Operations Center and former director of the Waste and Hazardous Substances Management Division, Pollution Control Department
- 15 Confirm stock of chemicals! Over 70 tons of pentane and 1,600 tons of styrene monomers caused the factory explosion. (2021, 5 July). Springnews. <https://www.springnews.co.th/news/811842>
- 16 Summary of the timeline of 'Ming Dih factory' since the explosion, fire on July 5, until the next morning. (2021, 6 July). Matchon Online. https://www.matchon.co.th/local/news_2813545
- 17 Open registration for claiming compensation from Ming Dih factory fire. (2021, 27 September). Thai News Agency. <https://tna.mcot.net/region-736784>
- 18 Picha Rakrod. (2021, 29 September). How much compensation must polluters have for the Ming Dih Chemical explosion!?, Greenpeace. <https://www.greenpeace.org/thailand/story/20297/ming-dih-chemical-the-polluter-has-to-pay>
- 19 Impairment is a situation where purchasing power is so disrupted that the price has to be reduced to create an incentive to stimulate buying. It will only happen if there are unusual events. The time the property is depreciated will not last long. When the market returns to normal, the price will revert to the same market forces.
- 20 Real estate shock: Ming Dih effect on impairment = 5%—the area is not dead yet. (2021, 29 September). Prachachat Business. <https://www.prachachat.net/property/news-710489>
- 21 Sukran Rojanaprawong and Chonlada Seusat. (2006). Report on the study of Klong Toei poisoning. Health and Safety Research Program with Worker/Victim Involvement in the formulation of public policy.
- 22 Nicha Rakpanichmanee, et al (2013). Risk communication and management of chemical accidents: Case studies of a factory accident: BST Elastomers. Map Ta Phut Industrial Estate, Rayong Province. Ecological Restoration Foundation.
- 23 Disease from styrene exposure. (2020, 24 February). Department of Disease Control. <http://envoc.dcc.moph.go.th/contents/view/59>
- 24 Styrene Monomer. Ibid.
- 25 Chulalongkorn University and the Department of Industrial Works. (no date) Safety Data Sheet. <http://www.chemtrack.org/MSDSSG/Merck/msdst/8076/807679.htm>
- 26 Disease from styrene exposure. (2020, 24 February). Department of Disease Control. <http://envoc.dcc.moph.go.th/contents/view/59>
- 27 Chulalongkorn University and the Department of Industrial Works. Ibid.
- 28 Group 2B means possibly carcinogenic to humans; but there is not enough information to confirm that it is a carcinogen in humans.

29 Chulalongkorn University and the Department of Industrial Works. Ibid.

- 30 Styrene Monomer. Ibid.
- 31 Departments of Medical Services and Health. (no date): Information on medical examinations of medical units between 2–26 March 1991. Bangkok Metropolitan Administration.
- 32 Department of Medical Services. Information of patients who received services from medical units and special clinics in hospitals between 2 March–2 April 1991. Bangkok Metropolitan Administration.
- 33 Pollution Control Department. (2012). The results of the monitoring of residual pollution in the environment from the case of explosions and fires of BST Elastomers Co. Ltd. in the Map Ta Phut Industrial Estate, Rayong Province.
- 34 Ecological Restoration Foundation. (2021). Supporting documents from a press conference on submitting a request to the Minister of Industry to prosecute the offenders behind the chemical explosion and fire at Ming Dih factory.

Smart Farming and the Future of Agriculture in Thailand

- 1 Puapongsakorn, N. and Pantakua, K. (2020). Agricultural Transformation in Thailand. Research report prepared for FAO. Bangkok: TDRI
- 2 Nipon Puapongsakorn et al (2019). The future of farmers as small-scale gardeners. Report presented to the research plan of Thailand 4.0, Chiang Mai University, and the Foundation of the Institute of Public Policy Studies under the Strategic Integration Plan (Spearhead), National Research Council.
- 3 Hassine, N.B. and Arayavechkit, B. (2020, November 29). Impact of COVID-19 on Thailand's households – insights from a rapid phone survey. *World Bank Blogs*. <https://blogs.worldbank.org/eastasiapacific/impact-covid-19-thailands-households-insights-rapid-phone-survey>
- 4 Revealing the economic and social impact of COVID-19 on small-scale farmer households in agricultural communities. (2021, June 23). Report on the economic and social impact of COVID-19 on small-scale farmer households in agricultural communities. <https://theactive.net/data/public-forum-20200623>
- 5 Drilling through the new challenges of Thai household debt during the COVID-19 crisis. Credit data on participating in the assistance measures. (no date). Bank of Thailand. https://www.bot.or.th/Thai/ResearchAndPublications/articles/Pages/Symposium_08Sep2020.aspx
- 6 Panee Bunyakuakul. (2018). Driving the development of Smart Farmers and Young Smart Farmers in Fiscal Year 2019. Operational guidelines of the Department of Agricultural Extension. Rama Gardens Hotel Bangkok.
- 7 Division of Technology Policy for Sustainable Agriculture. 2021. Guide to Driving the Center for Agricultural Technology and Innovation. Bangkok: Ministry of Agriculture and Cooperatives
- 8 Nipon Puapongsakorn, Kampol Pantakuat, and Natthida Wiwatwicha. (2022). Farming 4.0 Policy. Report presented to the research plan of Thailand 4.0, Chiang Mai University, and the Foundation of the Institute of Public

- Policy Studies under the Strategic Integration Plan (Spearhead), National Research Council.
- 9 Promoting the level of land used to sow dry rice to use less seed, only 1–3 kg per rai, planted at a distance of 30×15 cm per hole, using mechanical methods to get rid of weeds instead of using chemicals. Manage nutrients to suit the needs of plants.
 - 10 Niphon Puaphongsakorn, Kampo Pantakuat, and Natthida Wiwatwicha. (2022). Ibid.
 - 11 Division of Technology Policy for Sustainable Agriculture. 2021. Ibid.
 - 12 Niphon Puaphongsakorn et al (2019). Ibid.

Thailand and the Regional Comprehensive Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP): Impact and Concerns

- 1 RCEP comes into force on January 1, 2022. Thai products have immediately reduced the tax to 0% for more than 29,000. (2021, 9 November).The Standard. <https://thestandard.co/rcep-thai-products-have-been-taxed-to-0percent-01012022>
- 2 Health and social services sectors classified by the Provisional Central Product Classification (CPC) according to the WTO are divided into two main activities: Human health services (i.e., hospital, medical, dental, other human health); and social services (i.e., with accommodations, such as nursing homes, and without accommodations, such as vocational training centers for the disabled and the unemployed). The service model (Mode of Supply) is divided into 4 types: (1) Cross/border supply, in which service providers communicate with clients through electronic media systems in different countries; (2) Traveling to use services in a foreign country (Consumption Abroad) where the service provider travels to receive services with a service provider in another country; (3) Establishing a business abroad (Commercial Presence) in which the service provider in another country invests in establishing a business in another recipient country; and (4) Movement of Natural Persons, in which ordinary persons from one country travel to work or provide services in another country. This reciprocal service trade model reflects the positive and negative impacts that Thailand may expect from joining the RCEP.
- 3 TDRI (2015). Project to study the impact of the Regional Comprehensive Economic Partnership Agreement. <https://api.dtn.go.th/files/v3/5e3a754def4140237c0e9ffc/download>
- 4 Asia-Pacific Health Network Worried about RCEP Negotiations Blocking Access to Generics (2015, February 12). Prachatai. <https://prachatai.com/journal/2015/02/57898>
- 5 CPTPP: Who wins, who loses and the way out for Thailand. (2022, 12 January). Puey Ungpornakorn Institute of Economic Research. <https://www.pier.or.th/abridged/2022/01>
- 6 CPTPP vs RCEP When China is interested in becoming a member (Current Issue № 3282). (20021, 1 November). Kasikorn Research Center. <https://kasikornresearch.com/th/analysis/k-econ/economy/Pages/CPTPP-z3282.aspx>
- 7 Archanan Kohphaiboon and Sawera Thammasiri. (2021). Evaluation of the Liberalization of Free Trade Agreements on Trade and Investment in Thailand. International

Competitiveness Cluster, Thammasat University.

- 8 Department of International Trade Negotiation, together with Bolliger and Company (Thailand) Co., Ltd. (2018). Benefits, effects and readiness for market opening and regulations related to Thai agricultural products to joining the CPTPP. https://www.bolliger-company.com/seminar/data/seminar/files/DTN_CPTPP_Focus_Group_Agriculture_v4.pdf
- 9 Chon Bunnak. (2021, 7 May). Looking at CPTPP through the lens of SDGs: Unbalanced Development. SDG MOVE. <https://www.sdgmove.com/2020/04/28/cptpp-through-sdgs-lens-unbalanced-development>
- 10 That is to say, look only at the macro-economic dimension. Despite having a direct positive impact on Goal 8 (Decent Jobs and Economic Growth), and contributing to employment increases and Thailand’s competitiveness, the CPTPP agreement lacks consideration of the impact that will occur on social and environmental dimensions according to the principles of sustainable development. This includes vulnerable groups such as farmers and the poor. The CPTPP could have a negative impact on six main SDGs: Goal 1 Poverty Eradication, Goal 2 End Hunger, Goal 3: Ensure healthy lives and promote welfare for people of all ages; Goal 10 reduce inequalities within the country and between countries; Goal 12: Ensure sustainable forms of production and consumption, and Goal 15 protects, restores and supports sustainable use of terrestrial ecosystems, and stops the loss of biodiversity.
- 11 The Extraordinary Commission examines the impact of joining the Comprehensive and Progressive Agreement for the Pacific Economic Partners. (2020, 8 October). Report on the Impact of Participating in Comprehensive and Progressive Agreements for Pacific Economic Partners. (CPTPP). <https://bit.ly/3emMwf0>
- 12 Information from a study of the People’s Free Trade Agreement (FTA Watch) Study Group Rungpetch Sakulbamrungsilp et al. (2020). Final Report on Health Impact Assessment. Policy on the development of pharmaceutical industry in the country in terms of industrial readiness and access to medicines. Retrieved from: https://www.iththailand.net/upload_file/resources/128_file_TH27052021-19310505.pdf
- 14 Open paper on concern about the fact that the Ministry of Public Health continues to prepare to join the CPTPP. This is to warn that Thailand is not being prudent enough, and take care not to repeat the case of Agra gold mine. (2021, October 18). Prachatai. Retrieved from <https://prachatai.com/journal/2021/10/95524>
- 15 Consumer Organization Council: Opposition to the state joining the ‘CPTPP’ in crisis (2021, 27 June). <https://prachatai.com/journal/2021/06/93705>

Politics on the Streets and the Way Out

- 1 The term “Mob Fest” is a combination of political ‘mob,’ which, in Thailand, refers to a gathering of the masses for democracy, and ‘Fest,’ which stands for Festival, meaning carnival, and is manifest as a gathering outside the parliament. This is an approach of the new generation of political protesters to criticize state policies in parallel with the debate in

parliament. The legal case against the Mob Fest involves only one defendant, Mr. Parit, who is accused of defamation of the King, according to the Criminal Code Article 112, and incitement according to the Criminal Code Article 116 and violating the Emergency Decree. As for the 19–20 September 2020 rally at Thammasat University, the protesters are charged under Articles 112 and 116, by gathering in a group of ten people or more. Criminal Code Article 215, refers to violating the Public Assembly Act, violating the Emergency Decree, blocking the public roads, blocking the traffic, placing objects on the road that violates the rule of law, destroying antiquity, damaging property, and using a public address system without permission, among other charges.

- 2 Lawsuit against 4 members of the public, 11 charges including Articles 112 and (2021, 9 February). Krungthep Turakij. <https://www.bangkokbiznews.com/news/921699>
- 3 Rally summary: “Gathering of people who don’t have anything to eat. Strike cauldron to oust the dictatorship”—the incident with the Pathumwan Police Station. (2021, 10 February). Workpoint Today. <https://workpointtoday.com/mob10feb2021>
- 4 Rally: #Mob 13 February. The People’s Group ‘Counting from 1 to one million to restore power to the people.’ (2021, 13 February). Prachatai. <https://prachatai.com/journal/2021/02/91670>
- 5 It has begun. ‘Walk through the sky’ from Korat to Bangkok. Phai Dao Din rang out, never turn back until all our friends are released. (2021, 16 February). Matchon online. https://www.matchon.co.th/region/news_2580672
- 6 ‘Rally’ 7 years of failure: Discussions in parallel with the no confidence debate. (2021, 19 February). Daily News. <https://d.dailynews.co.th/politics/826456>
- 7 “The 20 February mob” settled in front of the parliament Raise a sign–write a letter to MPs debating the no confidence motion. (2021, 20 February). Thairath Online. <https://www.thairath.co.th/news/politic/2036599>
- 8 #Mob 23 February starts on Ratchaprasong Intersection Road. Raising the flag for the police rally. While the police prepare the water cannon to break up the protest. (2021, 23 February). Sanook. <https://www.sanook.com/news/8351474>
- 9 Summary #Mob 28 February: Rubber bullets–tear gas–water cannons: 23 protesters were arrested. (2521, 1 March).The Standard. <https://thestandard.co/28-february-rally-conclusion>
- 10 Decision 4/2564 dated March 11, 2021, regarding the President of the Parliament requesting the Constitutional Court to consider the constitutional ruling under Article 210 paragraph one (2) in case there is a problem with the duties and powers of the Parliament in proposing the draft constitutional amendment of the parliament members under Article 256 (1). (2021, 15 March). Constitutional Court. https://constitutionalcourt.or.th/download/article_20210315171005.pdf
- 11 208 votes in favor (206 MPs and 2 senators), 4 disapproved (4 senators), 94 abstained (10 MPs and 84 senators) and abstentions: 136 (9 MPs and 127 senators)
- 12 Mob 20 March–Police clash to disperse the rally at Sanam Luang, Ratchadamnoen, tear gas, rubber bullets, heavy injuries. (2521, 20

- March). PPTV Online. <https://www.pptvhd36.com/news/%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B9%80%E0%B8%A1%E0%B8%B7%E0%B8%AD%E0%B8%87/144107>
- 13 The later the evening, the more crowded #Mob 24 March chalk writing-art show 'Cancel 112' at Ratchaprasong intersection. (2021, 24 March). Matichon Online. https://www.matichon.co.th/politics/news_2640370
 - 14 The police stormed the "Through the Sky Village" in the morning, confiscated the their belongings for 3 minutes, tied the hands of "Ya Jai" and gathered more than half a hundred. (2021, 28 March). Matichon Online. https://www.matichon.co.th/politics/news_2645690
 - 15 There is also Mr. Shinawatra. Chankrachang (Bright), the leader of the group "New Generation Nonthaburi" and the leader of "People", Mr. Taikorn Polsuwan, a former member of the Democratic Party (PDP) and a former leader of the "Isaan National Rescue Movement", Mr. Karu Na Sai-ngam, a former MP for Buriram, a former senator, Lt. Col. Kamolphan Chewapansri, leader of the People's Defense Network, Mr. Saknarong Mongkol, Vice Chairman of the Campaign for Democracy Committee, Mrs. Phayao Akhad, mother of a volunteer nurse who died inside Wat Pathumwanaram in 2010, Mr. Suwit Sumanon, chairman of the Railway Workers' Union.
 - 16 April 4th: Former Yellow-Red-shirt rallied to oust Gen. Prayut, using the "May 35 Model". (2021, 4 April). BBC Thai. <https://www.bbc.com/thai/thailand-56629540>
 - 17 The mob gathered in front of the court stairs. Booed for the release of 'Penguin'. (2021, 29 April). Daily News. <https://d.dailynews.co.th/crime/840229>
 - 18 2 May Mob of Redem Group: What important events have happened? (2021, 2 May). Prachachat Business. <https://www.prachachat.net/politics/news-660736>
 - 19 These include DRG Democracy Restoration Group, Pool Rim Movement, Democracy for Hope DemHope, Ramkhamhaeng Network for Democracy, Talufa Group, Feminist Liberation, Health Personnel Alliance, Youth Liberation, Mutalu People, Salaya for Democracy, Workers' Union, Riders' Union, SUPPORTER THAILAND, We Volunteer or WeVo, off-road people
 - 20 Summary of the #Mob rally on July 18, the police fired tear gas, water cannon, and rubber bullets. They were, headed to Government House. (2021, 19 July). The Standard. <https://thestandard.co/pro-democracy-protestors-rally-180764-8>
 - 21 The main groups are the Thammasat Coalition and a rally by Parit Chiwarak, aka Penguin, the Nattawut Saikua group, a former leader of the United Front for Democracy Against Dictatorship (UDD), Karmob Nai, Sombat Bunngamanong or Editor Lai Dot, Thai Not Tolerant Group, and the New Generation Network, Nonthaburi
 - 22 Summary of activities Car-mob chasing Prayut from various fronts: #Mob 1 August heading to Vibhavadi Rangsit Road. (2021, 2 August). The Standard. <https://thestandard.co/car-mob-conclude>
 - 23 Aug. 1 rally: Car-mob 3 allied fronts, concurrent in more than 30 provinces, pressure Prayut to resign. The cause of failure to manage the COVID-19 crisis. (2021, 1 August 2021). BBC Thai. <https://www.bbc.com/thai/thailand-58045116>
 - 24 Summary of #Mobs 7 August, tear gas, rubber bullets and disperse operations throughout the day. (2021, 7 August). The Standard. <https://thestandard.co/assembly-7-aug-2021-summary>
 - 25 Photo set #Mob 10 August from Car-mob Ratchaprasong until the clash at the Din Daeng intersection. (2021, 10 August). Matichon Online. https://www.matichon.co.th/politics/news_2878563
 - 26 'A dictatorship cannot last forever. But the people will live forever.' Nattawut leads the car-mob again. Commemorating the 19 September 2006 coup. (2021, 19 September). The Standard. <https://thestandard.co/car-mob-190964-6>
 - 27 "Penetrate the Gas" opens his mind. In the future, he may move to another rally, aiming at "Nang Loeng Intersection". (2021, 20 September). Thairath Online. <https://www.thairath.co.th/news/politic/2198575>
 - 28 Namely: Mr. Anon Nampa, Mr. Panupong Jadnok, Ms. Panassaya Sithijirawatanakul, Mr. Parit Chiwarak, Ms. Jutathip Sirikhan, Ms. Siripatchara Jungteerapanich, Mr. Somyot Pruksakasemsuk, and Ms. Arthitaya Pornprom
 - 29 Constitutional Court decision № 19/2564 on request for the Constitutional Court to decide under the Constitution, Article 49. (2021, 10 November). Office of the Constitutional Court. <https://www.constitutionalcourt.or.th/download/ruling19-2564.pdf>
 - 30 Constitutional amendment: Piyabutr-Prit not giving up but disappointed after the Parliament has rejected amendments of the People's Constitution. (2021, 16 November). BBC Thai. <https://www.bbc.com/thai/thailand-59301928>
 - 31 Government spokesman warned of illegal car mobs; Police adjust their tactics to deal with protesters. (2021, 28 August). Workpoint Today. <https://workpointtoday.com/car-mob>
 - 32 Prayut reiterates to uphold the law against the big mob on October 31, appealing for political stability. (2021, 25 October). Khao Sot. https://www.khaosod.co.th/politics/news_6695281
 - 33 The above numbers are from the website. mobdata-thailand.org and Child in Mob Project, Center for Lawyers for Human Rights, Bangkok Emergency Medical Service Reporting (Erawan Center) and mainstream media coverage and the police.
 - 34 Data on injuries and fatalities from gatherings in 2021. (2021, 24 December). iLaw. <https://freedom.ilaw.or.th/en/node/1005>
 - 35 2021, Year of Legal War: 1,513 more political accusations, daily average, 4 new accusers (2021, 28 December). Lawyers Center for Human Rights. <https://tlhr2014.com/archives/39243>
 - 36 The state proceeded to use tear gas to disperse rallies amid calls for compromise. (2021, 13 August). BBC Thai. <https://www.bbc.com/thai/international-58203328>
- Recurrence of Flood Disasters: Impact and Adaptations**
- 1 Poaponsakorn, N., & Meethom, P. (2013). Impact of the 2011 floods and flood management in Thailand. *ERIA Discussion Paper Series*, ERIA-DP-2013-34.
 - 2 Global Water Partnership. (2017). *The 2011 Thailand floods in the Lower Chao Phraya River Basin in Bangkok Metropolis*. Stockholm: Sweden
 - 3 Geo-Informatics and Space Technology Development Agency (GISTDA). (2022, January 16). *Flood map*. <https://flood.gistda.or.th>
 - 4 Northern region: 6 provinces: Sukhothai, Phitsanulok, Kamphaeng Phet, Phichit, Tak and Phetchabun; Northeastern region: 8 provinces: Loei, Khon Kaen, Roi Et, Kalasin, Chaiyaphum, Nakhon Ratchasima, Buriram and Surin; Eastern region: 8 provinces: Nakhon Nayok, Prachin Buri, Sa Kaeo, Chachoengsao, Chon Buri, Rayong, Chon Buri and Trat; 9 and Central region. Nakhon Sawan, Lop Buri, Uthai Thani, Chainat, Saraburi, Sing Buri, Ang Thong, Phra Nakhon Si Ayutthaya and Suphanburi
 - 5 National Research Council (2021). Typhoon Dianmu and water management guidelines in the Chao Phraya Yai Basin in 2021 from the role of driving SIP research on water management. Khemmuang Research Project Water Management Work Plan, Phase 2.
 - 6 In 2020, catastrophic climate change will cause the worst floods and droughts in 15 years in the UK. More than 5,600 flood alerts were reported, and groundwater levels were likely to drop below average in many areas. country area
 - 7 In 2020, severe flooding affected a wide area in southern China and the Yangtze River Basin. There were repeated floods in 2021 in Henan Province from the cause of the abnormal rainfall. Meanwhile, water shortages from the July 2021 drought in China affected more than 1.51 million people in Gansu Province and the northwest of the country due to the warmer weather and prolonged period of low rainfall.
 - 8 Thanasupsin, S.P. (2022, January 16). *Climate change impacts on water resources: key challenges to Thailand CC adaptation*. https://www.rid.go.th/thaicid/_5_article/7symposium/7th-13.pdf
 - 9 Kiguchi, M., Takata, K., Hanasaki, N., Archevarahuprok, B., Champathong, A. Ikoma, E., & et. al. (2021). *A review of climate-change impact and adaptation studies for the water sector in Thailand*. *Environ. Res. Lett.*, 16(2021), 023004
 - 10 Endo, N., Matsumoto, J., & Lwin, T. (2009). Trends in precipitation extremes over southeast Asia. *SOLA*, 5, 168–71.
 - 11 Thanasupsin, S.P. (2022, January 16). Ibid.
 - 12 Global Water Partnership. (2017). Ibid.
 - 13 Office of National Water Resources. (2020). *The Water Resources Act 2018 and the 20-year Water Master Plan*, Portable Edition. https://nongoo.go.th/public/list_upload/backend/list_1955/files_5279_1.pdf
 - 14 The main points can be summarized as follows. Area 1: The objective is to provide clean water for consumption in households, communities, tourist attractions, and special economic areas as well as creating reserve water sources in areas with water shortages. Area 2 aims to develop and improve water storage and water delivery systems and water supply in rainwater farming areas. There is a set of goals to optimize drainage, organize a flood prevention system for urban communities. Area 3 aims to manage flooded areas, and control water flow to areas of need, e.g., systematic spatial flood mitigation. Area 4 focuses on water quality management and water resource conservation. It aims to develop and optimize the collection and community wastewater treatment systems and wastewater reuse, conservation and restoration of natural water resources. Area

- 5: Conservation and restoration of degraded watershed forests and soil erosion prevention. The focus is on conservation and restoration of degraded forest areas and prevention of soil erosion in upstream and slope areas; and Area 6: Management, which aims to have a modern water resource management and legal organization, as well as research studies, technology development, and innovation to lead to efficient management of water resources.
- 15 Irrigation and Drainage Committee of Thailand. (2020). Guide to planning for flood management with a no-construction approach. Bangkok: Mittraphap Printing and Studio Co., Ltd.
 - 16 Such community areas include: Samut Sakhon City, Krathum Baen, Ban Pong, Bang Ban, Muang Singburi, Phanat Nikhom, Namtan Ban Pang, Samut Songkhram City, Mueang Saraburi, Mueang Ratchaburi, Bang Pa-in, and urban area of Saraburi by covering continuous community areas around these.
 - 17 Phisut Sukhum. (2018). A new way of managing flood problems in community areas. The time has come to act. <http://203.170.248.248/coe-2/newsPic/N-20210811181949-1%E0%B8%A2.64.pdf>
 - 18 Wiphawadi Kritsanaphut & Kittisak Plathong (2013). Public Participation in Community Management During 2011 Thailand Floods: Lessons from Success of Pak Kret Municipality, Nonthaburi. *Journal of Humanities and Social Sciences*, 30(2): May–Aug 2013

#SAVE Bang Kloi and the Rights of Ethnic Minority Groups

- 1 Since 1981, there has been a Royal Decree specifying the area of North and South Yang Nam Klat forest areas of Nam Klat Subdistrict, Nong Ya Lat Subdistrict, Khao Yoi District, and Song Phi Nong Subdistrict, and Kaeng Krachan Subdistrict, Tha Yang District, Phetchaburi Province are designated as national parks, the 27th of the country according to the Cabinet resolution in 1979 to maintain the Kaeng Krachan forest condition in perpetuity.
- 2 Sadanu Sukkasem. (2019). Learning from rebuilding Karen Bang Kloi Community. Bangkok: Office of Knowledge Management and Community Innovation Communication. Community Organization Development Institute (Public Organization). Page 26.
- 3 Sadanu Sukkasem, Ibid, page 3.
- 4 Summarize everything to understand #SAVEBangkloi. The story of the struggle between state power and the Karen people. (2021, 7 March). Workpoint Today. <https://workpointtoday.com/explaine>
- 5 Petition by the young wife of “Billy” to sue Chaiwat for kidnapping her husband. (2015, 3 September). Thairath Online. <https://www.thairath.co.th/news/local/522606>
- 6 The mysterious forest kills “Krupod-Billy”– the mastermind is still at large. (2019), 3 September). Kom Chad Luek Online. <https://www.komchadluek.net/scoop/387045>
- 7 Summarize everything to understand #SAVEBangkloi: The story of the struggle between state power and the Karen people. Ibid.
- 8 The village headman said that if they stayed, they would starve to death. Karen Bang Kloi migrates back to Kaeng Krachan forest. (2021, 16 January). Prachatai. <https://www.prachatai.com/journal/2021/01/91219>
- 9 The Karen of Bang Kloi are not afraid to be prosecuted. After the government negotiates to leave the area, there may be a lawsuit if they refuse. (2021, 3 February). Prachatai. <https://www.prachatai.com/journal/2021/02/91495>
- 10 The National Park sent a team to persuade Bang Kloi residents to concede their native land. Villagers submitted 3 proposals for negotiation after April 2021 (2021, February). Prachatai. <https://www.prachatai.com/journal/2021/02/91551>
- 11 The MOU has the following key points: (1) Villagers who wish to return to shifting cultivation and maintain the traditional cultural way of life at Upper Bang Kloi (Jai Paen Din), be able to go back to cook and live the traditional way of life of their ancestors, by certifying the right to live and work in the indigenous community; (2) Ending any possible intimidation, harassment or violence against 36 families returning to live and work at Upper Bang Kloi (Jai Paen Din); (4) The government and relevant agencies are to comply with the Cabinet Resolution of August 3, 2010 on policies and guidelines for urgent rehabilitation of the Karen people’s way of life, especially measures to stop the arrest, prosecution of the Karen, and protection of agricultural lands in the form of swidden farms; (5) In the event that any family or villager wishes to live in Lower Bang Kloi to allow the state to allocate land for both living and enough to sustain life to be able to carry on a stable lifestyle; and (6) The State must cease the mobilization of government officials in establishing a deterrent point or patrol that creates pressure and fear on the villagers of Bang Kloi, and have measures to protect the welfare and the safety of all members of the Bang Kloi community.
- 12 After signing the MOU, Bang Kloy residents returned from Government House, but were asked to present personal identification history on the way back up. (2021, 17 February). Prachatai. <https://www.prachatai.com/journal/2021/02/91730>
- 13 The National Parks and the Security Forces file a complaint against the Kaeng Krachan forest intruders. (2021, 26 February). Prachatai. <https://www.prachatai.com/journal/2021/02/91879>
- 14 The Ministry of Natural Resources and the Environment affirms that “Karen” are in the Kaeng Krachan forest. Submits information to the World Heritage Center 1 Dec. 65. (2521, 30 July). Thai PBS. <https://www.news.thaipbs.or.th/content/306542>
- 15 Chakri Phothimane. (2021, 21 August). Probability of Mixed Heritage: The case of Kaeng Krachan Forest Group, SDG MOVE. <https://www.sdgmove.com/2021/08/21/sdg-insights-mixed-heritage-possibility-kaeng-krachan>
- 16 Bang Kloi: “Human-Free Forest” or “People Live with the Forest:” The future of Kaeng Krachan Forest and being a World Heritage Site. (2021, 19 March). BBC Thai. Retrieved 17 December 2021: from <https://www.bbc.com/thai/thailand-56453842>
- 17 “Ethnicity and Forests,” the neglected rights of the marginalized. (2021, 20 May). Research Café. <https://www.researchcafe.org/forest>
- 18 Sadanu Sukkasem, Ibid, p. 4.
- 19 More than 70 people in Bang Kloi are sick with contagious diseases of unknown origin: They have flu-like symptoms and bone pain but are inaccessible to treatment (2021, 27 October). Thai Post. <https://www.thaipost.net/district-news/13309>
- 20 ‘Save Bang Kloi-Navilit’ party donated food to help Bang Kloi after the villagers were found sick from malnutrition. (2021, 26 October). Prachatai. <https://www.prachatai.com/journal/2021/10/95635>
- 21 Sarawut Pathumrat. (2005). Laws and international agreements related to tribal rights in Thailand. Bangkok: Co-Khaiyan Media Team.
- 22 Enacting a new law on parks and wildlife protection, a continuation of the NCPO’s “reclaim forests” policy. (2021, 9 August).iLaw. <https://www.ilaw.or.th/node/5937>
- 23 Sueb Nakhasathien Foundation. (2020, August 27). Report on Thai Forest Situation 2019-2020. [https://www.seub.or.th/document/Thai Forest Situation/Forest Situation Report-6](https://www.seub.or.th/document/Thai%20Forest%20Situation/Forest%20Situation%20Report-6)
- 24 Krisada Boonchai. (2019, 13 April). 26 years of the Community Forest Act. Reflections on the turbulence of Thai democracy. ThaiPublica. <https://www.thaipublica.org/2019/04/krisada-boonchai-04>

4 Outstanding Accomplishments for Health

Thailand Aims to Develop “Genomics Medicine” to Treat 5 Disease Groups

- 1 “Genomics” creates good health from birth until death. (2021, 24 November). Krungthep Turakij. <https://www.bangkokbiznews.com/columnist/973729>
- 2 “Genomics”, the medical service of the future. (2021, 8 November). Chulabhorn Channel. <https://www.chulabhornchannel.com/infomation/deposit-news/2021/12/%E0%B8%88%E0%B8%B5%E0%B9%82%E0%B8%99%E0%B8%A1%E0%B8%B4%E0%B8%81%E0%B8%AA%E0%B9%8C-%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B9%81%E0%B8%9E%E0%B8%97%E0%B8%A2%E0%B9%8C%E0%B9%81%E0%B8%AB%E0%B9%88>
- 3 Eastern Economic Corridor Office of Thailand, in collaboration with HSRI, joins hands with Thai Omics in a public-private venture to set up a service center for genomics medical testing. The project will decode the genome of 50,000 Thai people, starting as important information database, laying the foundation for the treatment of patients in 5 groups of diseases of the future. This will show that genomics medicine makes it possible to treat precisely, on the spot. (20021, 11 November).EECO. <https://www.eeco.or.th/th/news-release-pr/397>

Continuing Thai Development of a COVID-19 Vaccine

- 1 Thailand team for the COVID vaccine. (2020, 28 September). WHO. <https://www.who.int/thailand/news/feature-stories/detail/team-thailand-for-covid-19-vaccine-THA>
- 2 Thai national vaccine next year: injection to control COVID-19. (2021, 14 December). Thairath

Online. <https://www.thairath.co.th/news/local/2263816>

- 3 Update progress on a COVID vaccine made by the Thai people. (2021, 7 September). Department of Mental Health. <https://www.dmh.go.th/news/view.asp?id=2381>

Advocating for a Tax Policy on Sugar-Containing Beverages: Global Outstanding Achievement Award 2021 for the Thai Department of Health

- 1 The Thai Department of Health receives the UNIATF Award through outstanding work on "Advocating for a policy to tax sugary beverages". (2021, 25 September). Office of the Health Promotion Fund. <https://shorturl.asia/ShPsy>
- 2 The Thai Department of Health receives UNIATF Award through outstanding work on "Advocating for a tax policy on sugary beverages" showing that Thai people consume 17.7% discount on canned soda beverages. (2021, 27 September). Thai Post. <https://www.thaipost.net/main/detail/117987>

Thai-Made Anti-Smoking Drug "Golden Chamchuri Seed"

- 1 Thailand successfully produces the first drug to quit smoking using the herbal extract 'Golden Chamchuri'. (2021, 30 May). Krungthep Turakij. <https://www.bangkokbiznews.com/social/940895>
- 2 Thailand successfully produces the first smoking cessation drug, cytosine, and prepares to add this to the national drug list. (254, 30 May). Office of the Health Promotion Fund. <https://shorturl.asia/0p3Nu>

Feature Article

The Thai Family & COVID-19

- 1 Chula Doctors reveal that Thailand has 2 pregnant mothers infected with COVID-19, assessing the Chinese experience. The chances of the newborn being infected by the mother are low. (2020, 16 April). Thai Post. <https://www.thaipost.net/main/detail/63359>
- 2 Six dangerous conditions 'Pregnant women' infected with 'COVID', 3 times more severe. (2021, 23 April). Bangkok Business. <https://www.bangkokbiznews.com/news/956200>
- 3 Wanicha Panyakhamlert. (2021). How dangerous is it when pregnant mothers are infected with COVID-19? Bangkok Hospital. <https://www.bangkokhospital.com/content/when-pregnant-mothers-are-sick-with-COVID-19>
- 4 Ploynin Phuttaphithakpong (2021, 20 April). Pregnancy during COVID. How much is the risk? Pramam 9 Hospital. <https://www.pramam9.com/Covid19-pregnancy/>
- 5 Ministry of Public Health reveals that most of the pregnant women who are infected and die from COVID were unvaccinated. (2021, 19 October). 7HD. <https://news.ch7.com/detail/523245>
- 6 One year, COVID-19 kills pregnant women. Worldwide, the number 1 cause of death among pregnant women. (2021, 19 October). PP TV. <https://www.pptvhd36.com/news/health/158744>

- 7 COVID-19: In August, CCSA found an average of one pregnant woman died per day, ordering urgent vaccination for this group to increase vaccination of high school students (2021, 3 September). BBC Thailand. <https://www.bbc.com/thai/thailand-58433795>
- 8 Make the Ministry of Public Health issue regulations "Pregnant women WFH" 100% during COVID-19. (2021, 27 August). Bangkok Business. <https://www.bangkokbiznews.com/news/957003>
- 9 Hillis, S. D., Unwin, H., Chen, Y., Cluver, L., Sherr, L., Goldman, P. S., Ratmann, O., Donnelly, C. A., Bhatt, S., Villaveces, A., Butchart, A., Bachman, G., Rawlings, L., Green, P., Nelson, C. A., 3rd, & Flaxman, S. (2021). Global minimum estimates of children affected by COVID-19-associated orphanhood and deaths of caregivers: a modelling study. *Lancet (London, England)*, 398(10298), 391–402. [https://doi.org/10.1016/S0140-6736\(21\)01253-8](https://doi.org/10.1016/S0140-6736(21)01253-8)
- 10 "Bright" grabs a piece of paper to wipe away tears and in a trembling voice, tells about the heartbreaking story of 2 girls. (2021, 27 July). Khaosod online. https://www.khaosod.co.th/entertainment/news_6531441
- 11 Moves Forward party, urges the M.D. to open information - guidelines to help 'orphans' from COVID. (2564, 3 September). Bangkok Business. <https://www.bangkokbiznews.com/news/952637>
- 12 COVID-19 has not ended, the trend of orphans is increasing daily. (2021, 8 September). Workpoint Today. <https://workpointtoday.com/orphan/>
- 13 Education Equality Fund (EEF). (2021, 7 September). COVID-19 is not over yet. The trend of "orphans" is increasing daily. EEF - UNICEF offers free education until finishing bachelor's degree. Ready to build a special support system. Children are affected. <https://www.eef.or.th/news-eef-unicef-the-trend-of-orphans-increases-daily>
- 14 COVID-19 has not ended, the trend of orphans is increasing daily. (2021, 8 September). Workpoint Today. <https://workpointtoday.com/orphan>
- 15 Rittapirom, T. (2021, June 14). Falling birth rates spell trouble for Southeast Asia. *Bangkok Post*. <https://www.bangkokpost.com/business/2131943/falling-birth-rates-spell-trouble-for-southeast-asia>
- 16 Matthews, S. (2021, June 23). COVID-19 accelerates Existing Decline in Fertility Rates. *Bangkok Post*. <https://www.newsecuritybeat.org/2021/06/covid-19-accelerates-existing-decline-fertility-rates/>
- 17 Luppi, F., Arpino, B., & Rosina, A. (2020). The impact of COVID-19 on fertility plans in Italy, Germany, France, Spain, and the United Kingdom. *Demographic Research*, 43(47), 1399-1412. DOI: 10.4054/DemRes.2020.43.47
- 18 Innnews. (2021, March 19). 7 reasons why young people do not want children. https://www.innnews.co.th/lifestyle/news_64351
- 19 Tonkit 360. (2021, 2 May). The reason why "Gen Y women" do not want to have children. <https://tonkit360.com/81758>
- 20 A newborn child: Danger signal. (2522). February 2) Matchon Online. https://www.matchon.co.th/education/news_3162499
- 21 TheAsianParent Thailand. (2521). COVID-19 causes pregnant mothers to give birth alone. Coronavirus impact. Line Today. <https://today.line.me/th/v2/article/1XeEQv>

- 22 United Nations Thailand. (2020). Social Impact Assessment of COVID-19 in Thailand. United Kingdom.
- 23 Research results indicate that online learning children are stressed, aggressive, lack of appetite, and drop out of school. (2021, 6 July). Matichon Online. https://www.matichon.co.th/education/news_2814069
- 24 The Standard Team. (2021, 7 September). Data breach. Children are dropped from the education system when cloth coverings and neckerchiefs reflect problems facing Thai children. The Standard. <https://thestandard.co/key-messages-children-dropped-out-of-the-education-system>
- 25 Newsflash: Private schools, five deductions; 2,000 baht in accrued fees after parents complained to the Prime Minister. (2022, 30 August). Matichon Online. https://www.matichon.co.th/education/news_2911802
- 26 Reduce tuition fees in 2021 to heal students; Check the latest updates here. (2021, 7 September). Economic Base. <https://www.thansettakij.com/general-news/494818>
- 27 Urban Creature. (2021, 18 August). If the teacher is listening I want you to know that I'm tired. Listen to the hearts of Thai children on the day you have to come back to study online. <https://urbancreature.co/online-study-feedback>
- 28 Member number 4601741. (2561, 12 August). Complaining about online classes, you never talk to me again. Pantip. <https://pantip.com/topic/40905418>
- 29 Arm your parents with ideas. Helper...children study online. (2021, 18 September). Thai Post. <https://www.thaipost.net/main/detail/117048>
- 30 Wongphan Amarinthewa. (2564). Because education can't be stopped. How to study abroad during COVID- 19. Education Equality Fund (EEF). <https://www.eef.or.th/education-abroad-Covid/>
- 31 ThaiHealth recommends 3 learning tools for children during COVID-19. (2021, 30 August). Komchadluek. <https://www.komchadluek.net/news/481152>
- 32 Study online with 7 health problems that Thai children have to face and how to solve them. (2021, 27 August). Krungthep Turakij. <https://www.bangkokbiznews.com/news/957001>
- 33 DOH reveals that COVID has caused Thai children to have reduced physical activity, need accelerated stimulation, and build Thai children to be healthy, balanced, strong, IQ EQ good. (2521, 23 August). Online Manager. <https://mgronline.com/qol/detail/964000083000>
- 34 "Sapat" reveals that COVID drags on unemployment in the 1st quarter of 2014, adding 7.6 hundred thousand people. (2521, 24 May). Matichon Online. https://www.matichon.co.th/economy/news_2739344
- 35 International Labor Organization. (2020, June 15). COVID-19 employment and labor market impact in Thailand. https://www.ilo.org/wcmsp5/groups/public/--asia/--ro-bangkok/documents/briefingnote/wcms_747944.pdf
- 36 Komin, W., Thepparp, R., Subsing, B., & Engstrom, D. (2021). COVID-19 and its impact on informal sector workers: A case study of Thailand. *Asia Pacific Journal of Social Work and Development*, 31(1-2), 80- 88.
- 37 Household debt has passed 90%! Kasikorn Research Center Worried about Thai people drowning in debt. (2021, 2 July). Prachachat

- Online Business. <https://www.prachachat.net/finance/news-703734>.
- 38 Direk Patamasiriwat, Phudtan Pantunen, and Meredee Inon. (2021, 20 August). "Saving Immunity for Families and Reducing Vulnerabilities". Matichon online. https://www.matichon.co.th/columnists/news_2895170
 - 39 Center for Economic and Business Research, Siam Commercial Bank (Economic Intelligence Center (EIC)) SCB. (2020, 7 May). Thailand after COVID-19 Part 1: Impact on the economy and Thai labor market. Siam Commercial Bank. <https://www.scb.co.th/th/personal-banking/stories/business-maker/thailand-after-Covid-ep1.html>
 - 40 Government Savings Bank Research Center. (2020, November). Savings in Thailand in 2020. https://www.gsbresearch.or.th/wp-content/uploads/2020/11/MC_hotissue_saving_2020_inter_ex.pdf
 - 41 Suan Dusit Poll. (2021, 14 March). Summary of survey results: Thai families in the Covid-19 era. https://suandusitpoll.dusit.ac.th/UPLOAD_FILES/POLL/2564/PS-2564-1615691188.pdf
 - 42 Isranews Agency (2564, 24 June). The COVID crisis, the risk factor for domestic violence, made a record in the year 64, jumping to 1.4 thousand cases. <https://www.isranews.org/article/isranews-scoop/99838-isranews-v.html>
 - 43 Office of the National Economic and Social Development Council. (2021, 25 August). Conditions of Thai society in the second quarter of 2021. https://www.nesdc.go.th/ewt_dl_link.php?nid=5492
 - 44 Thairath Online. (2021, 23 July). Comparing the healing measures of 9 countries and Thailand. How are they similar or different? <https://www.thairath.co.th/scoop/theissue/2147657>
 - 45 Bank of Thailand. (2021, May-June). The "brainhouse" of state remedy measures. BOT Phra Siam Magazine, 3(1). https://www.bot.or.th/Thai/BOTMagazine/Documents/PhraSiam0364/BOTMAG3-64_Final.pdf#page=31
 - 46 Bangkok Business. (2021, 15 July). Remedy must be sufficient to meet the target group. <https://www.bangkokbiznews.com/politics/949000>
 - 47 Workpoint Today. (2021, 15 August). 4 agencies open centers to help children. Affected by the COVID-19 problem. <https://workpointtoday.com/Covid-19-136/>
 - 48 Office of the National Health Commission. Look at Thai society after COVID-19: Emphasize the importance of decentralization, paving the way for national reform. <https://www.nationalhealth.or.th/en/node/2242>
 - 49 Matichon Online. (2521, 8 July). Protest march to share photos of the COVID crematorium until the furnace is almost destroyed. Line Today. <https://today.line.me/th/v2/article/VDZoRB>
 - 50 Fire in the crematorium stuck with COVID: Monks and novices ran and splashed water on each other. (2021, 12 July). Komchadluek Online. <https://www.komchadluek.net/news/474058>
 - 51 COVID-19 deaths, 18 bodies, crematorium, Nakhon Si has more than 1 thousand infected. (2521, 14 October). Bangkok Business.
 - 52 The number of COVID rises, causing a lot of deaths. The crematorium cannot keep up. Pathum Provincial Administrative Organization raises funds to build 6 furnaces. (2021, 24 July). Thairath Online. <https://www.thairath.co.th/news/local/central/2148858>
 - 53 COVID kills two brothers and sisters; the middle brother is infected and sleeps over the corpse. Waits for help. (2021, 29 July). Thairath Online. <https://www.thairath.co.th/news/local/bangkok/2152845>
 - 54 COVID crisis, monks have to wear PPE clothes to act as undertakers to help cremation. (2021, 2 August). Daily News Online. <https://www.dailynews.co.th/news/113932/>
 - 55 Thailand ranked 7th with the most public holidays in the year 2021 in the world. (2020, 29 December). PPTV Online. <https://www.pptvhd36.com/news/foreign/139252>
 - 56 Sadly, a 45-year-old man waiting for a COVID test, died alone in the room. Friends revealed that he went to the hospital many times, but the queue was too long. Bangkok Business. (2521, July 9). <https://www.bangkokbiznews.com/news/948019>
 - 57 A child with COVID is waiting for the hospital to die tragically. Dad jumped off the building and died. The medical personnel have already been sent. Thairath online. (2021, 3 July). <https://www.thairath.co.th/news/society/2131141>
 - 58 BBC Thai. (2021, 6 August). COVID-19: Zen-Dai -We Must Survive-Isarachon Volunteer power to fight Covid- 19 when the state government can't manage. <https://www.bbc.com/thai/thailand-58096985>
 - 59 E-Jan. (2021, 10 February). Mae Nom E-Jan Project. <https://www.ejan.co/video/MaeNomEJanProject>
 - 60 Get to know the "Mirror Foundation" and the sharing box giveaway project to fight COVID-19. (2020, 1 June). Bangkok Business. <https://www.bangkokbiznews.com/social/883159>
 - 61 Mirror Foundation Accepting oxygen tank donations to help those infected with COVID. (2021, 14 July). Thai PBS. <https://news.thaipbs.or.th/content/306070>
 - 62 Mirror Foundation. (2021, 31 August). Krajak Ngao Foundation – "The breath of COVID patients after the end of treatment". https://m.facebook.com/story.php?story_fbid=10158136485960009&id=135097415008
 - 63 Office of the National Health Commission. (2020, 3 April). NESDB joins forces with partners to fight the war! In the operation "Together with Citizens Awakening Fight the dangers of COVID-19". <https://www.nationalhealth.or.th/en/node/1376>
 - 64 Community Organization Development Institute. (2021, 21 November). Take lessons from the "Power of Community Organizations Awareness of COVID-19". <https://web.codi.or.th/20211121-28726/>
 - 65 Dept. of Disaster Prevention and Preparedness projects the impact "Dian Mu-Lion Rock-Khompasu" 13 provinces of high school grade (2561, 17 October). Prachachat Business. <https://www.prachachat.net/general/news-783531>
 - 66 Milestones of 2021: Great flood. After 10 years of flooding, where did the water management plan go? (2021, 23 December). Nation Online. <https://www.nationtv.tv/news/378857809>
 - 67 Thailand Development Research Institute Foundation. (2014, January 15). 350 billion baht project. Lessons. Failures. Forum for water management opinions. <https://tdri.or.th/water/thaipublica20>



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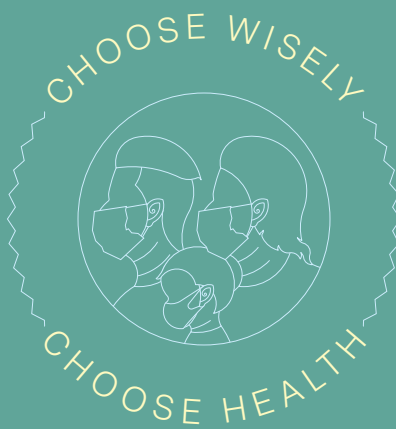
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Thai Health Report Team



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