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## Invited Article: Contribution of Universal Health Coverage to Thailand 4.0

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### Abstract

Thailand 4.0 is a new development model for the country introduced by the General Prayut Chan-o-cha's government. Under this concept, the present-day Thailand is called Thailand 3.0, characterized by heavy industry and export-oriented economy. Unfortunately, Thailand 3.0 has been caught in three traps, namely middle income trap, inequality trap, and imbalance trap. To escape from these traps, the most tangible proposal so far is that Thailand 4.0 will be led by five industrial clusters based on innovation and service sector. In addition to promote these industrial clusters, this article showed that an investment in health human capital is another key investment for government to achieve Thailand 4.0. Several studies demonstrate a positive association between health human capital and the national income level. Moreover, the investment in health human capital evidently reduces inequalities. Therefore, the health human capital investment can help the country escape both middle income trap and inequality trap. The Universal Health Coverage (UHC) policy is arguably the most crucial way for government to invest in health human capital. UHC is endorsed and promoted by the World Health Organization (WHO), the World Bank, and the United Nations (UN). Achieving UHC is Target 3.8 of the UN Sustainable Development Goals (SDGs). Although Thailand has implemented UHC since 2002, the current government, the one which proposes the Thailand 4.0 model, seems to regard UHC as the fiscal burden rather than a key investment to achieve Thailand 4.0. This article proposed further that, to accelerate the escape from the inequality trap, the government should support the decentralization of UHC through two existing mechanisms, i.e., district health system and community health fund.

**Keywords:** Thailand 4.0, Human capital, Health, Universal health coverage, Public policy

## Thailand 4.0

Thailand 4.0 is a new development model for the country introduced by the General Prayut Chan-o-cha's government. It has been publicly launched about the end of 2015. Thailand is portrayed according to the model as follows:

Thailand 1.0: Agriculture-oriented economy

Thailand 2.0: Light industry for domestic consumption

Thailand 3.0: Heavy industry and export-oriented economy

Thailand 4.0: Innovation- and service-oriented economy

This model refers to the present-day Thailand as Thailand 3.0, which is characterized by heavy industry and export-oriented economy. Thailand 3.0 has been caught in three traps—namely, middle income trap, inequality trap, and imbalance trap. The goal of Thailand 4.0 is therefore to escape from these traps (Ministry of Industry, 2016; The Secretariat of the House of Representatives, 2016).

The most tangible proposal so far is that Thailand 4.0 will be led by five industrial clusters including biotechnology (food and agriculture), biomedical science (health and wellness), mechatronics (smart devices and robotics), embedded technology (internet of things), and high-value services (creativity and culture). In addition, it is indicated that the development under Thailand 4.0 will be participatory and environmentally friendly. However, the proposal for these are less clear (Ministry of Industry, 2016).

Although Thailand 4.0 is supposed to be free from all three traps, the way the issue is framed as well as the proposed solutions is mainly related to the middle income trap; proposals for other two traps are barely mentioned. It might be the influence of the United Nations Sustainable Development Goals (SDGs) that puts pressure on the government to include inequality and imbalance in development into the model without deliberate considerations. The middle income, inequality, and imbalance traps are more or less equivalent to economic, social, and environmental dimensions of the SDGs, respectively (Economic & Council, 2016).

## Escape from middle income trap and health human capital

To escape from the middle income trap is to become a high income country. According to the World Bank, high income country is defined as a country with gross national income (GNI) per capita equal to 12,476 USD or more in 2015 (The World Bank, 2017b). In 2015, the per capita GNI for Thailand was 5,720 USD (The World Bank, 2017a). Thailand needs to approximately double its income to escape from this trap.

To raise a national income level, a key investment is indeed an investment in human capital (Krugman & Wells, 2012; Schultz, 1961). Human capital consists of two major dimensions: education and health. This article focuses on the health dimension of human capital and demonstrates its contribution to national income, then Thailand 4.0.

In the early days, studies concerning effects of human capital on economic growth focused primarily on education (Bloom et al., 2001; Knowles & Owen, 1995). Thus positive associations between education and economic growth have been demonstrated in several studies (Barro, 1998; Cohen & Soto, 2007). Until recently, a relationship between health human capital and economic growth has been explored.

Howitt (2005) applied the Schumpeterian growth theory to explain the effect of population health on long-run economic growth. Healthier population exerts a positive effect on economic growth through six channels: increased productive efficiency, increased life expectancy, increased learning capacity, increased creativity, increased coping skill, and decreased inequality (Howitt, 2005). According to this theoretical finding, an improvement in health human capital could facilitate Thailand to escape from both middle income and inequality traps.

Several pieces of empirical evidence support the theoretical finding. Knowles and Owen (1995) used life expectancy as a variable representing health human capital. They found a positive and significant effect of life expectancy on per capita national income. In this study, the effect of health on

national income was even stronger than the effect of education (Knowles & Owen, 1995). An analysis of data from 43 countries—including 21 African countries and 22 members of Organization for Economic Co-operation and Development (OECD) showed a positive association between health human capital and per capita national income. In addition, a positive relationship between investment in health human capital and national income was demonstrated. This study estimated that improvement in health was contributed to 22% of economic growth in African countries and 30% in OECD countries (Gyimah-Brempong & Wilson, 2004).

A study reported a positive association between population health and gross domestic product (GDP). This study estimated that a one-year increase in life expectancy of population contributes to 4% increase in GDP (Bloom et al., 2001). Hence, investment in health human capital is likely to pay for itself. Another study found that a reduction in mortality raising population levels of education and consumption. The authors argued that an increase in life expectancy, due to decreased mortality, makes education more valuable since a person has a longer expected period to receive benefits from education (Kalemli-Ozcan et al., 2000).

A study from Thailand compared concentration indices (an indicator for inequality) before and after the implementation of the universal health coverage (UHC) policy, which is a form of investment in health human capital. After the UHC implementation, a utilization of outpatient services was more equitable at sub-district, district, and provincial levels. For inpatient services, it was significantly more equitable at the provincial level (Limwattananon et al., 2011).

In summary, the positive effect of health human capital on national income level has been demonstrated in several studies. Improved health also has a positive effect on education, another dimension of human capital. Furthermore, an improvement in health human capital also contributes to a decrease in inequality. Hence, investment in health human capital potentially helps the country to escape from at least two out of three traps mentioned in the Thailand 4.0 model.

## Universal health coverage (UHC) policy

The UHC policy is a form of public investment in health human capital. It has been promoted and endorsed by the World Health Organization (WHO), the World Bank, and the United Nations (The World Bank, 2016; World Health Organization, 2016). UHC has been set as the Target 3.8 of the SDGs—“Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all”—to be achieved in 2030 (Economic & Council, 2016).

The UHC policy has been fully implemented in Thailand since 2002. Accordingly, Thai UHC has been praised as a successful case study for middle income countries (Tangcharoensathien et al., 2010; Tangcharoensathien et al., 2007). In this regard, Thailand has achieved the Target 3.8 of the SDGs even before the UN sets up the SDGs.

According to the current proposal for Thailand 4.0, health-related investment is narrowly focused on biomedical technology as an industrial cluster. At the same time, the government regards UHC, an internationally-endorsed investment in health human capital, as a fiscal burden (Hfocus, 2015; Thai Government, 2015). Thai authorities might be unaware of the positive effects of investment in health human capital on national income and inequality (Howitt, 2005; World Health Organization, 2016).

## Community health system under UHC

With respect to the inequality trap, aside from having UHC at the national level, promoting decentralization of health system could accelerate a decrease in health inequality. With respect to the decentralization, the Ministry of Public Health (MoPH)—a main healthcare provider in Thai health system—employs the district health system policy (Ministry of Public Health, 2014). The National Health Security Office (NHSO)—a public body acting as a third-party payer under UHC—has set

up community health funds since 2002 in cooperation with MoPH and the Department of Local Administration, Ministry of Interior (National Health Security Office, 2014). These two existing mechanisms could strengthen community health system.

In practice, a number of challenges make these mechanisms underutilized. For instance, local administration organizations—a key player at the community level—has lack of understanding about health and healthcare; management tools for utilizing community funds are lacking; and different rules for reimbursement (one used by NHSO, another used by Ministry of Interior), which are sometimes conflicting, have been simultaneously applied for community health funds makes it difficult to use the funds (National Health Security Office, 2014). The government should address these challenges to support those two existing mechanisms. This will strengthen community health system and accelerate the escape from the inequality trap.

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## Conclusions

In the Thailand 4.0 model, the government refers to three traps to be escaped from. In practice, the government only has solid proposal for the middle income trap (i.e., the five industrial clusters) and leaves behind other two.

This article showed that investment in health human capital is a key investment, aside from investment in industrial clusters, for government to achieve Thailand 4.0. Theoretical and empirical findings showed positive effects of health human capital on national income and inequality. Hence, investment in health human capital could help the country escaping both middle income and inequality traps. The Universal Health Coverage (UHC) policy is a crucial way for government to invest in health human capital. To accelerate the escape from the inequality trap, the government should support the decentralization of health system through two existing mechanisms, i.e., district health system and community health fund.

UHC should not be regarded as fiscal burden since it is likely to pay itself off due to its effect on national income. UHC could have a substantial contribution to the transition of Thailand 3.0 into Thailand 4.0.

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## The Participation Development of Sweet Potato Washing Machine by Tabnam Community Bangpahan District Phra Nakhon Si Ayutthaya Province

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### Abstract

The sweet potato washing machine using water pressure has been developed with participation of Tabnam community Bangpahan district, Phra Nakhon Si Ayutthaya province. The traditional processes of washing consists of soaking sweet potatoes from cultivation plots for about 1 hour to remove the dirt, packing them in net bags for 30 kg, lifting each net bag up in order to clean it with high-pressured water and checking the cleanness. The machine can greatly facilitate the process of cleaning sweet potato. In 8 working hours, it can operate 24,338 kg per day whereas the traditional process was 1,920 kg per day. The production cost is decreased from 0.30 to 0.03 baht per kg and it can reduce one step of the washing process. With the machine production cost of approximately 35,000 baht, the money invested on the machine can be returned in forms of the saving in the process within 13 days of operation. From the process, the important aspect is to produce the machine matching the contextual needs of the area. The community participation is required to identifying problems, find solutions to the problems together. In the final stage, the technology transfer process leads to the learning and understanding of machine development in the effective participation.

**Keywords:** Phra Nakhon Si Ayutthaya province, Sweet potato washing machine, Participation of agriculture, Technology transfer



Lamud Wan (Sweet Sapodilla), Namtan Ded (Good Sugar from Sugar Palm Tree), Chomphu Phechr (Rose Apple), Khaw Med Ngam (Beautiful Rice): Knowledge Management for Enhancing Community Creative Economy of Ban Lat District, Phetchaburi Province

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## Abstract

The objectives of the project of knowledge management for enhancing community creative economy of Ban Lat district, Phetchaburi province are; to study the knowledge of its outstanding products, design the activities of knowledge management, and study the guidelines to enhance Ban Lat's creative economy. Observation, interview and focus group discussion are used to study the knowledge. The analysed data is triangulated by the research team, research assistants and local wisdoms. The guidelines to enhance the knowledge management are studied by the focus group discussion with community members and experts. The products of the research is a series of 4 books enhancing local wisdom. These are also published as E-books posted on website. Regarding guidelines of knowledge management for enhancing community creative economy, this research proposes that the community apply knowledge from the books, which promote local wisdoms in value-added products such as creative products, agricultural tourism activities and open creative zones to provide learning activities: art and craft from agriculture contests, festivals and show, etc. The research also suggests both formal and informal education institutions in the community that they should bring knowledge from knowledge management to organize learning activities that conserve local wisdom, to develop the local curriculum and to use the process of research and development to drive the community. Higher education institutions should be involved continuously and the community should use the output from the knowledge management as a tool to raise their awareness and pride.

**Keywords:** Phetchaburi province, Local wisdom, Knowledge management, Lifelong learning, Creative economy



## Potential and Guidelines for Tourism Development in Khanthuli Sub-district, Suratthani Province

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### Abstract

The objectives of this research were to classify recreation opportunity, evaluate potential of tourism resources and initiate guidelines for tourism development in Khanthuli sub-district, Suratthani province. It was participatory action research. Data was collected by using in-depth interview, survey, observation and SWOT analysis. The instruments used for this research were an application of recreation opportunity spectrum (ROS), an evaluation of cave attraction potential and interview questionnaire form. Descriptive content analysis and evaluation were used to determine the result of the study. The result revealed that the majority of the community agreed to participate in administrating tourist attractions with Khanthuli sub-district Administration Organization (57%), community (27%) and Khanthuli Conservation Group (16%). The result of the ROS demonstrated that Roi Phraphutthabath cave, Lueak cave, Ta Chit cave and Thai Thong cave were semi-primitive non-motorized (mean = 3.89, 3.64, 3.90 and 3.95, respectively), Khang Kao cave was primitive (mean = 4.47), and the swamp forest trail was semi-primitive motorized (mean = 3.37). Result from the potential evaluation indicated that the cave attractions (Roi Phraphutthabath cave, Lueak cave, Ta Chit cave and Thai Thong cave) had significant potential (score of 77, 77, 81 and 78, respectively) and Khanthuli swamp forest had moderate potential (mean = 1.93). In addition, the tourism development plan consisted of 5 plans (18 projects) as follows: 1) landscape and infrastructure development plan 2) human resources development plan 3) environmental protection plan 4) public relation plan and 5) tourism looping management plan. The essential elements for success were participations among potential people, supporting organizations and tourism network development.

**Keywords:** Suratthani province, Recreation opportunity spectrum, Attraction potential, Guidelines for tourism development



## The Community Tourism Marketing Management based on Cultural Heritage Site of Khong-Chi-Mun River Basin for Linked Thai-Laos-Vietnam Tourism

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### Abstract

The objectives of this research are 1) to increase community based tourism (CBT) competitiveness and mechanism of marketing management, 2) to develop CBT potential of ISAN human resources, 3) to participate of local community in marketing management, 4) to study the tourist behavior and need and tourist perception toward the CBT on cultural heritage, and 5) to find out the guidelines for development of the destination image and to develop the strategies for the image communication of the CBT. This research employed both quantitative and qualitative research. The research populations of Thai, Laos, Vietnamese, international tourists are respectively 400, 200, 100 and 100 samples as well as local community members of CBT in north eastern region. For the qualitative research, the researcher collected data of 75 CBT villages and 20 CBT villages for the participation action research process. To increase the competitiveness and marketing mechanism of CBT based on Cultural Heritage of Khong-Chi-Mun River Basin in North Eastern Region of Thailand, the CBT cluster and networking are developed to increase potential, knowledge, understanding in marketing management in middle level. The vision of CBT ISAN cluster and network plan and mechanism is "Collaborative and Cooperative for creating and increasing CBT and sustainable of community based tourism marketing management". The vision of CBT marketing plan is "Be tourist destination in uniqueness and identity of north eastern region with is ISAN way of life and cultural, purely of ISAN local community, and satisfy tourist by provides the best welcome and service in ISAN identity way and standard". Common tourist needs are the friendly service from the good host. Tourist behaviors of Thai, Laos, Vietnamese and international are different. For the perception of the destination image of the community based tourism in the north eastern region, The perception of Thai and foreign tourists is the friendliness of ISAN people, whereas, that of Laos tourists is ISAN cultural heritage. On the other hand, Vietnamese tourists have perception in terms of the local identity of ISAN ethnic groups.

**Keywords:** CBT management, Tourism marketing management mechanism, CBT image, CBT cluster



## Model of Health Promotion of Diabetes Mellitus Patients with Traditional Herbs by Using Environment Education Process

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### Abstract

The objectives of this research were to 1) construct and develop the model for potential increase in using traditional herbs to enhance the health of Diabetes Mellitus Type 2 patients by environmental education, and 2) evaluate the satisfaction of the Diabetes Mellitus Type 2 patients and their family members towards the proposed model. The focus research site was Kabinburi Hospital, Prachinburi Province. The research focus groups included: 1) ten persons from the group of medical physicians, pharmacists, and registered nurses at the Diabetes Clinic, Kabinburi Hospital; 2) five expert persons; 3) sixty patients of Diabetes Mellitus Type 2 who were poor glycemic control, and 4) sixty family members of those sixty patients. The six research instruments were used for this research included 1) question points for group discussion; 2) an evaluation form for the model congruity; 3) the criteria for participatory action research using group dynamics technique; 4) handbook for potential increase in using traditional herbs to enhance the health of Diabetes Mellitus Type 2 patients by environmental education; 5) a form of record of using traditional herbs to enhance the health of Diabetes Mellitus Type 2 patients; and 6) a satisfaction evaluation form. The results were that:

The construction of the model for potential increase in using traditional herbs to enhance the health of Diabetes Mellitus Type 2 patients by environmental education consists of 3 components. The first component is Principle of learning by doing. In the second component, five steps of process management are as follows; 1) Relationship building using group dynamic activities and problem recognition by way of group analysis method, 2) Knowledge management by lecturing, 3) Awareness building through demonstration method, 4) Skill building by encouraging the patients to cook herbal food according the recipes in the handbook of herbs composed by the researcher and 5) Participating for mutual recognition of the patients' problems, by allowing the patients to do self-healthcare with the supports from their family members and learning exchange among the patients. The third component is supporting factors. The researcher had to have the expert available to give suggestions and monitor. In addition, the researcher had to arrange for the patients' family members to provide support and take care of' the patients, including information about traditional herbs from media, and equipment. In terms of the patient satisfaction towards the development model, the overall satisfaction was at good level ( $\bar{x}$  = 4.16; SD = 0.95). When considered at each factor, the factor of participation, and skill building by demonstration received the highest level of satisfaction ( $\bar{x}$  = 4.12; SD = 0.98) followed by the learning activity by lecturing about using appropriate herbs ( $\bar{x}$  = 4.08; SD = 0.88). Besides, the results revealed that the family members had overall satisfaction towards the development model at good level ( $\bar{x}$  = 4.21; SD = 0.88). When considering at each factor, the factor that received the highest satisfaction was the learning activity of using the appropriate herbs by lecturing ( $\bar{x}$  = 4.32; SD = 0.88) followed by the skill building by demonstrating the use of traditional herbs for consumption ( $\bar{x}$  = 4.24; SD = 0.85).

**Keywords:** Prachinburi province, Model for enhances the health, Traditional herbs, Diabetes mellitus patients, Environmental education process