



Development of Strengthening Higher Education Institution Models for Sustainable Development of Local Communities

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Abstract

This study aimed to develop a model to enhance the role of higher education institutions (HEIs) in supporting the sustainable development of local communities. The model was informed by Thailand's Ministry of Higher Education, Science, Research and Innovation (MHESI) policies and the actions of HEIs in systematic community development from 2019 to 2023. A mixed-methods approach was adopted, including questionnaire-based data collection and model evaluation through focus group discussions addressing relevance, suitability, and feasibility. The research instruments-structured questionnaires, focus group protocols, and in-depth interviews—were validated through a literature review of relevant documents on HEIs' contributions to local development. The sample included representatives from 85 out of 104 eligible HEIs. Data were analyzed by three focus groups: (1) eight representatives from MHESI and higher education experts, (2) eight executives from HEIs involved in area-based and community engagement initiatives, and (3) four leaders or specialists in local development. The model was further refined through in-depth interviews with three higher education experts. Questionnaire results indicated strong support for MHESI policies in guiding HEI contributions to local development, with average ratings of 89.0% for policy support, 86.0% for model suitability, and 79.2% for policy-driven action plans. The model demonstrated high alignment with key national initiatives, particularly the Integrated Sub-district Economic and Social Enhancement Project, the University to Tumbon (U2T) project, and the Post-COVID Economy and Social Development Project with a Bio-Circular-Green (BCG) economy approach, which achieved the highest alignment score (81.6%). Other notable areas of alignment included HEI grouping policies (78.8%) and participation in the Times Higher Education (THE) Impact Rankings (75.8%). Focus group evaluations affirmed the model's responsiveness to local needs. In-depth interviews confirmed its completeness, particularly in operational mechanisms for translating national policies into actionable strategies. The findings highlight that sustainable local development can be significantly advanced through collaboration

between MHESI, HEIs, local communities, and other stakeholders. The study recommends drafting policies that explicitly define the roles of HEI networks, which are proven to be key drivers of sustainable community development.

Introduction

Higher Education Institutions (HEIs) in Thailand are established to provide academic and higher vocational education across various disciplines, awarding diplomas and degrees to graduates. According to the Higher Education Act of 2019 (Royal Gazette Office, 2019), HEIs are mandated to deliver education, advance research and innovation, provide academic services, promote arts and culture, and develop human resources in alignment with national priorities and global competitiveness. A key provision of the 2019 Act is the classification of HEIs into five distinct groups. This classification aims to enhance institutional quality and standards based on each institution's capacity, mission, and ability to apply knowledge, research, technology, and innovation to support development across various sectors. The five HEI groups are:

1) Global and Frontier Research group, focuses on producing international quality research and to compete internationally.

2) Technology and Innovation group, focuses on providing education to support technology and innovation development that responds to national needs in agriculture, industry, and service sectors.

3) Area-based and Community Engagement group, emphasizes on developing local communities and communities with mutual objectives and benefits, creating a hub for learning, knowledge and technology transfer for strengthening community, and lifelong learning for sustainable development.

4) Moral and Intellectual Cultivation group, develops wisdom through religious principles combined with academic principles.

5) Development of Professionals and Specialists group, focuses on producing and developing specialists and professional graduates with high vocational abilities as well as ensuring graduates are responding to country demands in specific fields (The Ministry of Higher Education, Science, Research and Innovation, 2021a).

A total of 104 higher education institutions (HEIs) are classified under Thailand's higher education grouping scheme, with 48 institutions designated under Group 3: Area-Based and Community Engagement (Ministry of

Higher Education, Science, Research, and Innovation, 2022, 2023). These institutions play a crucial role in fostering local human resource development by promoting self-awareness, leadership, and innovation to drive change at the community level. One notable example is Rajabhat University, a network of HEIs within Group 3, which has established a 20-year local community development strategy (2017–2036). This strategy explicitly defines the role of HEIs in supporting local development initiatives (Council of University Presidents of Rajabhat Universities, 2018). Similar models of HEI-driven community development can be observed internationally. For instance:

- The University of North Carolina at Chapel Hill, United States, established The Carolina Small Business Development Fund, which supports career-building by providing financial resources and entrepreneurial training for small enterprises in low-income communities (Carolina Small Business Development Fund, 2023).

- The University of California, Berkeley, United States, founded The Berkeley Food Institute to address issues related to access to healthy food (Berkeley Food Institute, 2023).

- The University of Chittagong, Bangladesh, launched Grameen Bank, which provides microfinance opportunities for low-income Bangladeshi women, empowering them to start businesses and improve their families' economic well-being (The Nobel Prize, 2023).

The Ministry of Higher Education, Science, Research, and Innovation (MHESRI) has actively supported HEIs in the local community development group through various initiatives. One such program is the Integrated Sub-District Economic and Social Enhancement Project (1 Tambon 1 University), which aimed to strengthen local economies by leveraging HEIs as system integrators (MHESRI, 2020a). This project later evolved into the Post-COVID Economic and Social Development Project under the Bio-Circular-Green (BCG) Economy framework. This initiative capitalized on the unique resources, biodiversity, and cultural diversity of local communities to develop sustainable economic strategies (MHESRI, 2020b). Additionally, HEIs in this category were encouraged to participate in Times Higher Education (THE) Impact Rankings to align their efforts with the United Nations' 17 Sustainable Development Goals (SDGs) (MHESRI, 2021b).

While MHESRI has established policies and action plans to support HEIs in community development,

further considerations are necessary to enhance the effectiveness, sustainability, and adaptability of these initiatives. Future policies must respond to both global challenges and local needs, ensuring alignment with the sustainable development principles outlined by the United Nations (UN) and Thailand's Community Development Department. A critical factor in this process is community participation. Local communities contribute manpower, resources, and traditional knowledge, while also identifying their own needs and challenges. Despite MHESRI's implementation of numerous community development policies and projects from 2019 to 2023, a systematic evaluation of their impacts remains lacking. To maximize effectiveness, it is essential to establish a structured model that organizes, synthesizes, and assesses these initiatives.

This research aims to propose a model for local community development based on MHESRI's policies and projects between 2019 and 2023. The study seeks to develop a framework that enables HEIs to engage in sustainable community development while providing policy recommendations to enhance future initiatives.

Objectives

1. To study policies of the Ministry of Higher Education, Science, Research and Innovation, and HEIs action plans related to local community development from 2019 to 2023.

2. To compile, analyze and develop models to strengthen HEIs for the sustainable development of local communities.

3. To summarize and draft policy recommendations to the Ministry of Higher Education, Science, Research and Innovation on strengthening HEIs for the sustainable development of local communities.

Conceptual Framework

This study employed a mixed-methods approach utilizing sequential designs within a sequential transformative model (Creswell, 2009). The research received ethical approval from the Srinakharinwirot University Ethics Committee for Human Research (SWUEC) under Approval No. SWUEC-662062 (September 13, 2023). The study began with the collection and analysis of qualitative data related to local community development policies and the operations of the Ministry of Higher Education, Science, Research, and Innovation (MHESRI) and higher education institutions (HEIs) from 2019 to 2023. These findings

informed the development of a structured questionnaire, which was subsequently evaluated by representatives from higher education institutions. The collected responses were analyzed and used to construct models for the sustainable development of local communities. To ensure validity and reliability, the proposed models were assessed through focus group discussions with selected population samples. Further evaluation of the models' completeness and suitability was conducted using in-depth interviews. The insights gained from these evaluations were synthesized to formulate policy recommendations for MHESRI. The research framework is illustrated in Figure 1.

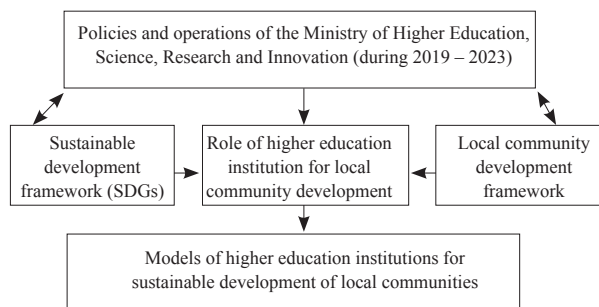


Figure 1 Conceptual Framework

Research Methodology

Population and Samples

The population were identified through 3 steps:

- 1) Data from questionnaire provided by stakeholders from 104 HEIs involved in the sustainable development of local communities,

- 2) Data from focus group discussions with the following samples 1) Eight executives, expert committees, and higher education experts from the MHESRI and 2) Eight executives of HEIs from the area-based and community engagement group, and researchers specialized in local community development, and 3) Four community leaders or specialists in local community development,

- 3) Data from In-Depth Interview with three higher education experts.

Sample selection

Samples were selected in 3 steps as follows:

- 1) Samples were selected using simple random sampling from 104 HEIs involved in sustainable development of local communities, and were in position of president, vice president, director, or as the designated person,

2) Simple random sampling was used with the following requirements and properties:

2.1) Ministry executives, expert committees of higher education, committees, subcommittees, working groups, and experts in the local community development with at least two years of experience in policy regulation, agency administration, and experts committee in local community development,

2.2) Higher education executives of area-based and community engagement groups were considered for positions including president, vice president, or assigned higher education executive who supervised the encouraging local community development project according to the MHESRI from 2019 to 2023, experience in Sustainable Development Goals (SDGs) driving or exhibiting the work on conducting HEIs to participate in the local community development with expert researchers in local community development,

2.3) Local community leaders or experts in local community development were considered for leadership knowledge, experience of work for local community development, or cooperation with HEIs for local community development,

3) Simple Random Sampling was used based on the experience of policy regulation and agency administration as an expert committee.

Research Instrument

1) Survey questionnaire. The survey questionnaire was developed based on insights from the literature review and designed to align with the research objectives. To ensure validity, the questionnaire was evaluated for The Index of Item-Objective Congruence (IOC) by three experts.

The questionnaire comprised three sections:

- Part 1: General Information This section included three items designed to collect demographic data, using drop-down lists and open fields for respondent input.

- Part 2: Opinions on Policies for Strengthening HEIs in Sustainable Community Development

This section assessed respondents' perspectives on policy suitability, policy implementation, and alignment with local community development principles. The questionnaire contained four main components:

1. Policies supporting HEIs in promoting sustainable local community development.

2. Suitability of policies supporting HEIs in promoting sustainable local community development.

3. Implementation of policies for sustainable

local community development driven by HEIs.

4. Alignment of policies with development principles across various dimensions.

- Part 3: Policy Evaluation Using Likert Scales

- A 3-point Likert scale was used to evaluate opinions on policy support and suitability, with response options:

- Slightly Agree / Poor (1 point)
- Intermediately Agree / Moderate (2 points)
- Mostly Agree / Excellent (3 points)

- A 5-point Likert scale was applied to assess policy implementation and alignment with development principles, covering:

- Policy implementation for sustainable community development (3 items).
- Alignment with development principles across various dimensions (3 sub-questions, 8 items per sub-question).

The criteria for interpreting the average scores are provided below.

Average scores	level
2.34 – 3.00	Mostly agree/Excellent
1.67 – 2.33	Intermediately agree/Moderate
1.00 – 2.33	Slightly agree/Poor

A Likert Scale with 5 levels comprising of Very low, Low, Moderate, High, and Very high, these referred to 1 to 5 scores, respectively.

Criteria for interpreting the average score are provided below.

Average scores	level
4.51 – 5.00	Very high
3.51 – 4.50	High
2.51 – 3.50	Moderate
1.51 – 2.50	Low
1.00 – 1.50	Very low

Part 3: The questionnaire included open-ended questions aimed at identifying limitations and obstacles that hinder the effectiveness of policies for sustainable local community development. Additionally, respondents provided input on policy models and strategies to enhance HEI participation in community development, as well as further institutional support needed from the MHESRI.

2) Structured interview- The Focus Group: A focus group discussion was conducted to gather expert opinions on models for strengthening HEI participation in sustainable local community development. The structured interview covered four key areas: HEI responses to local community development, suitability of the proposed models, challenges and limitations in

model implementation, and key factors influencing the success of these models

3) Structured interview- In-depth Interviews: In-depth interviews were conducted to obtain recommendations for improving the completeness and suitability of the models developed through the focus group discussions. The interviews focused on: model completeness, model suitability, and additional factors influencing HEIs' role in sustainable local community development.

Data Collection

1) The questionnaire was developed using secondary sources, including books, academic publications, research reports, and online databases. relevant laws, policies, and actions of MHESRI (2019–2023) related to HEI participation in sustainable local community development were reviewed. The conceptual framework was aligned with the roles of HEIs in community development and the Sustainable Development Goals (SDGs).

2) The questionnaire was distributed to collect opinions on MHESRI policies and actions (2019–2023) implemented through various projects. The survey responses informed the development of a draft model to strengthen HEI involvement in sustainable local community development.

3) Data collected by Focus Group and In-Depth Interviews. Findings from the questionnaire were used to design open-ended questions for the focus group and in-depth interviews. Data collection was conducted with the explicit consent of participants, allowing for the recording of discussions, photographs, and audio to ensure data accuracy and reliability.

Data Analysis

1) Data from Part 2 of the questionnaire were analyzed using the two-sample t-test for comparing two means. The differences were considered significant when the p-value was less than 0.05 ($p < 0.05$).

2) Data from open-end questions, Focus Group, and In-depth Interview were analyzed using Descriptive Analysis.

3) The collected data from the questionnaire, focus group, and in-depth interviews were grouped and analyzed by descriptive analysis referring to the completion and suitability of the developed model for encouraging HEIs in sustainable local community development, according to the policies and actions of the MHESRI.,

4) Data were compiled and analyzed to summarize the conclusion, and recommendations for the developed model of encouraging higher education institutions for sustainable local community development. The summary was used to prepare the policy proposal for the MHESRI to encourage HEIs for sustainable local community development.

Results

1. Implementation of policies of the Ministry of Higher Education, Science, Research and Innovation to encourage higher education institutions for local community development (during 2019 – 2023)

The questionnaire was reviewed by the experts and sent to the responsible people involved in sustainable local community development of the 104 HEIs. The questionnaire asked for the policies and projects including higher education institution grouping, the integrated sub-district economic and social enhancement project (U2T), the Post-Covid economy and social development project with BCG economy (U2T for BCG), and the project to support HEIs in THE Impact Rankings to implement the framework of SDGs. The questionnaire was filled out by 85 institutions (81.73%). The data were evaluated using the Likert Scale and the results are the following:

1.1 Policies supporting HEIs to encouraging policies for sustainable local community development

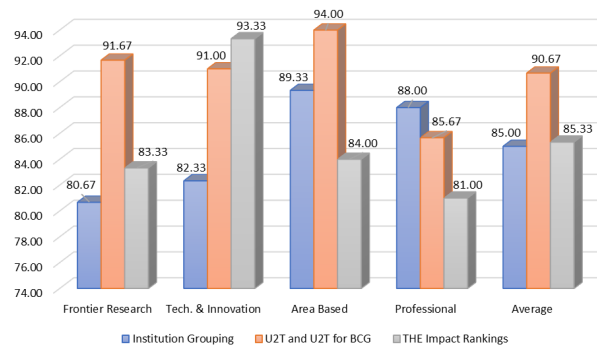


Figure 2 Policies supporting HEIs to encouraging policies for sustainable local community development

Figure 2 exhibits the three policies that contributed to the sustainable development of the local community at a high level (87%). The effect of policies and projects on sustainable local community development were sorted from highest to lowest: U2T and U2T for BCG had the highest effect on sustainable development

of local community (90.67 %), followed by the project to support HEIs in the Impact Rankings to implement the framework of SDGs, (85.33 %), HEIs grouping policies (85 %).

1.2 Suitability of policies supporting HEIs for encouraging policies of sustainable local community development

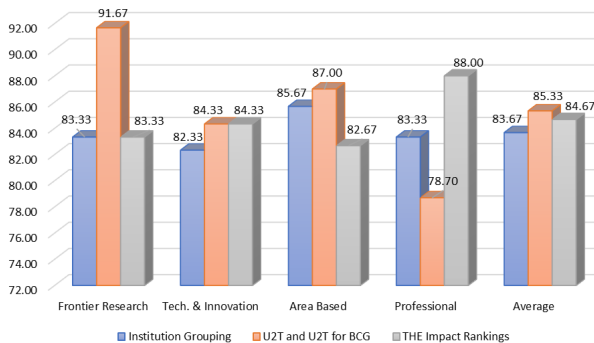


Figure 3 Suitability of policies supporting HEIs for encouraging policies of sustainable local community development

Figure 3 displays the suitability of the policies, in which the suitability of three policies was at a high level (84.67%), sorted from highest to lowest: U2T, and U2T for BCG (85.33%), the project to support HEIs in THE Impact Rankings to implement the framework of SDGs, (84.67%), and HEIs grouping policies (83.67%).

1.3 Policy Implementation for sustainable local community development driven by HEIs

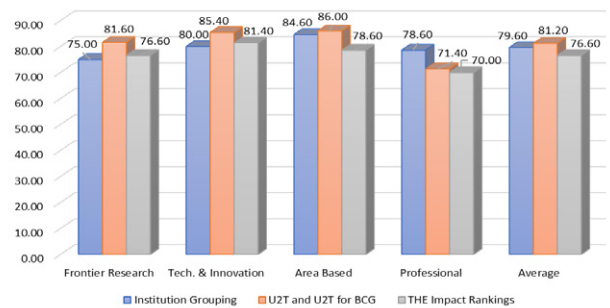


Figure 4 Policy Implementation for sustainable local community development driven by higher education institutions

The results from Figure 4 indicates that the three policies were implemented to develop the local community at a high level (79.13%). The policy implementations were sorted from highest to lowest:

U2T, and U2T for BCG (81.20%), HEIs grouping policies (79.60%), and the project to support HEIs in THE Impact Rankings to implement the framework of SDGs (76.60%).

1.4 Alignment of policies with development principles across various dimensions

The policies U2T, U2T for BCG, HEIs grouping policies, and supporting HEIs in THE Impact Rankings to implement the framework of SDGs were analyzed against principles of sustainable local community development across various dimensions, as summarized below:

1) Higher education institution grouping policies

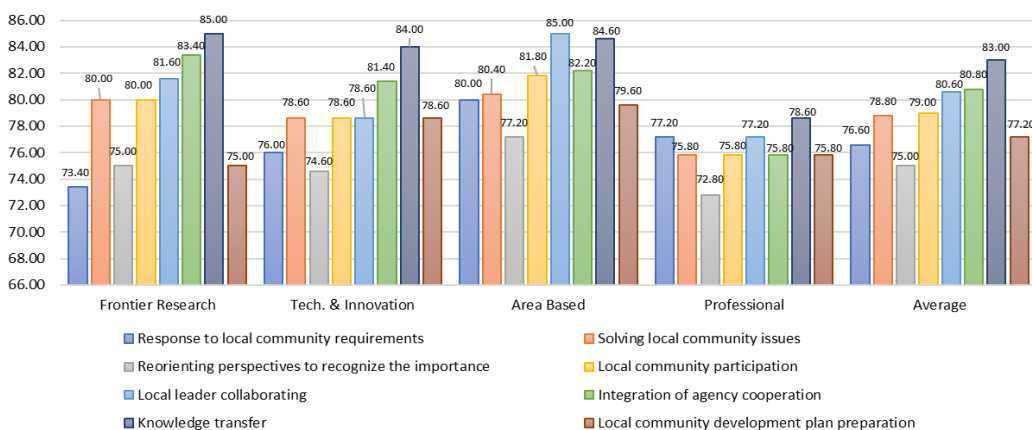


Figure 5 Opinions on grouping HEIs policy to local community development principles

Illustrated in Figure 5, the grouping policy supported local community development principles at a high level across all dimensions (78.80%). Knowledge transfer to develop skills and abilities of local communities showed the strongest alignment (83.00%), followed by integration of agency cooperation to solve issues and develop local communities (80.80%), and building local leader collaboration to develop local communities (80.60%). All HEIs, except those in the Area-based and Community Engagement group, believed grouping policies had the highest impact on knowledge transfer for local skill development. However, the Area-based and Community Engagement group indicated that grouping policies primarily affected local leaders collaborating to develop local communities.

2) The Integrated sub-district economic and social enhancement project (U2T) and the Post-Covid economy and social development project with BCG economy (U2T for BCG)

The integrated sub-district economic and social enhancement project (U2T) and the Post-Covid economy and social development project with BCG economy (U2T for BCG) showed the highest effect on local community development principles at a high level (81.60%) (Figure 6). The projects promoted the principles of local community development in various fields including knowledge transfer to develop skills and abilities of local communities (83.80%), engaging the local community in participation (82.80%), and local leaders collaborating to develop local communities (82.40%). The institutions belonging to the Technology and Innovation group, and Area-based and Community Engagement group, agreed that the projects had the most impact on knowledge transfer to develop skills and abilities of local communities, while those of Global and Frontier Research group concluded the projects had the most effect on engaging the local community in participation. Additionally, institutions in Development

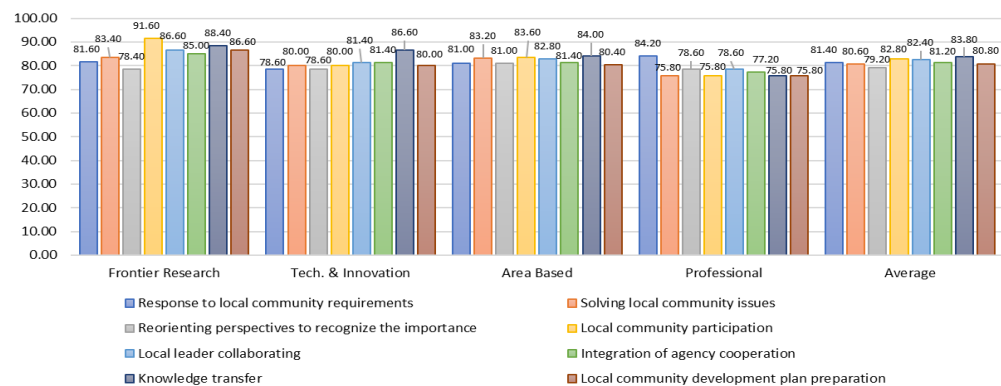


Figure 6 Opinions on the Integrated sub-district economic and social enhancement project (U2T) and the Post-Covid economy and social development project with BCG economy (U2T for BCG) to local community development principles

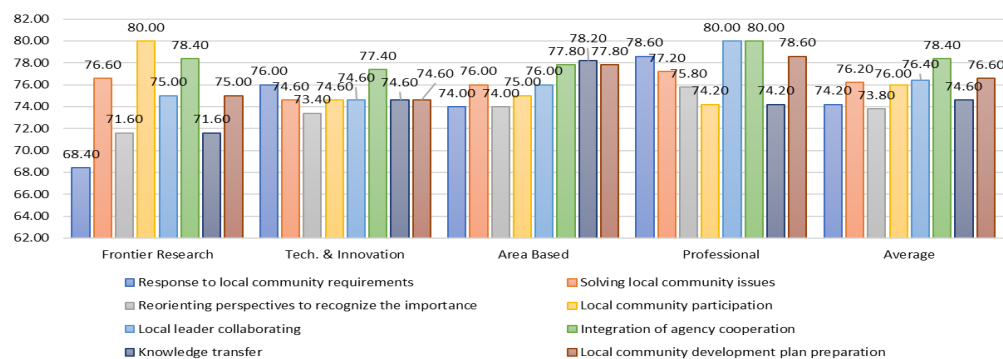


Figure 7 Opinions on the policy to support higher education institutions in THE Impact Rankings to Implement the framework of Sustainable Development Goals (SDGs) to local community development

of Professionals and Specialists group indicated that projects mostly supported the response to local community requirements.

3) Supporting higher education institutions in THE Impact Rankings to implement the framework of Sustainable Development Goals (SDGs)

Figure 7 shows that the policy to support HEIs in THE Impact Rankings to implement the framework of Sustainable Development Goals (SDGs) promoted the local community development principles at a high level (75.80%). The policies affected the integrated cooperation for solving issues and developing local communities (78.40%), local community development plan preparation (76.60%), and local leaders collaborating to develop local communities (76.40%), respectively. The institutions under the Technology and Innovation group, and Development of Professionals and Specialists group, believed that policies could affect the local community development principles of solving issues and developing local communities. While the institutions of Global and Frontier Research group expressed the opinion that policies had the most effect on the local community in participation, and the institution of Area-based and Community Engagement group agreed with the policies that had the most effect on knowledge transfer to develop skills and abilities of local communities.

1.5 Limitations or obstacles resulting in ineffective policies for sustainable local community development

Limitations or obstacles resulting in ineffective policies for sustainable local community development consisted of 5 factors, including lack of agency integration and overlapping operations, inadequate data on local communities and lack of data linkage to concretely apply, lack of long-term planning and consistent action, insufficient personnel dedicated to local community development, and limited collaboration with local community leaders.

1.6 Models and future action plans to support policies to strengthen HEIs to participate in sustainable local community development

The interview results showed that the models and actions involving the participation of HEIs in sustainable local community development should be comprised of 5 important points, consisting of formulation of well-defined and continuous policies and actions, maintaining MHESRI's continuous engagement, creation of central database with improved data accessibility linkage for better utilization, clear role of

the MHESRI to cooperate with agencies, and creation and development of mechanisms or tools to support HEIs to be involved in sustainable local community development.

1.7 Needs for supportive policies by the MHESRI

It was found that HEIs have needs for policies to be adopted by the MHESRI in 3 areas; to be a coordinating agency on policies with related agencies, to support HEIs in their operations, and to support and development of manpower and career opportunities.

2. Response of developed models to strengthen HEIs for sustainable local community development

The data from the questionnaire and interview were analyzed to develop models to strengthen HEIs for sustainable local community development. The results demonstrated that U2T, and U2T for BCG had the strongest impact on encouraging and driving HEIs for sustainable local community development. Moreover, the projects responded to local community development principles in various fields at a high level. HEIs of the Area-based and Community Engagement group played a key role in projects driving and actions and had a role in actions of policies for sustainable local community development and policy driving according to local community development principles. Therefore, the models were created and developed based on the U2T, and U2T for BCG, and were used to provide 3 levels of action including national policy, ministry policy, and policy driving mechanism.

3. Analysis of completeness and suitability of the sustainable local community development models

The focus group discussions served as the primary method for assessing the completeness and suitability of the developed models. The findings are summarized as follows:

3.1 Responses to local community development. The results indicated that the models effectively addressed local community development needs. The key recommendations included: addressing community issues based on genuine needs, promoting mutual understanding between HEIs and local communities, and establishing collaborative networks to enhance policy implementation.

3.2 Suitability of the developed models. The models were deemed appropriate for strengthening HEI involvement in sustainable local community development. Recommendations for refinement included: enhancing coordination among external agencies,

developing a centralized database to analyze community needs at all policy levels, establishing new agencies responsible for local development policy implementation, aligning action plans with SDG goals, and revising budget allocation processes to improve financial support mechanisms under the MHESRI.

3.3 Challenges and limitations of the developed models. A key challenge identified was communication gaps between U2T, U2T for BCG, and local communities. Recommendations to address this issue included: implementing a two-way communication framework, allowing HEIs to contribute knowledge while local communities provide first-hand insights into their needs, developing systematic action plans based on local demands, and strengthening the role of HEIs in knowledge creation and community engagement.

3.4 Key factors supporting sustainable local community development. A primary factor influencing the effectiveness of these models was active HEI participation in local development efforts. To support this, it was recommended that the MHESRI: implement policies that encourage HEI representatives to serve on working groups, committees, and agencies involved in local development, facilitate HEI contributions to career development initiatives within communities, and ensure continuity and sustainability in policy implementation.

4. Summary of model development encouraging HEIs for sustainable local community development

Findings from focus group discussions were further validated through in-depth interviews, confirming the completeness and suitability of the proposed models. Key results are summarized as follows:

4.1 Completeness of the proposed models. Experts recommended refinement to policy implementation mechanisms, particularly in enhancing the effectiveness of agency actions responsible for local development.

4.2 Suitability of the proposed models. The models were deemed appropriate for integration into the MHESRI's policy framework. The experts emphasized the need for structural support to ensure successful adoption.

4.3 Additional factors influencing the effectiveness of the proposed models. Key expert recommendations included: strengthening communication channels between HEIs and local communities to improve collaborative development planning, establishing network management frameworks for HEIs to coordinate effectively, and encouraging cross-sector collaboration among public organizations, state enterprises, and supervised agencies to integrate personnel, funding, and resources for local community development.

The final evaluation of the models, including their completeness and suitability, is summarized based on in-depth interview findings (figure 8). The developed models are designed to align with and support policy implementation at three levels, as outlined below.

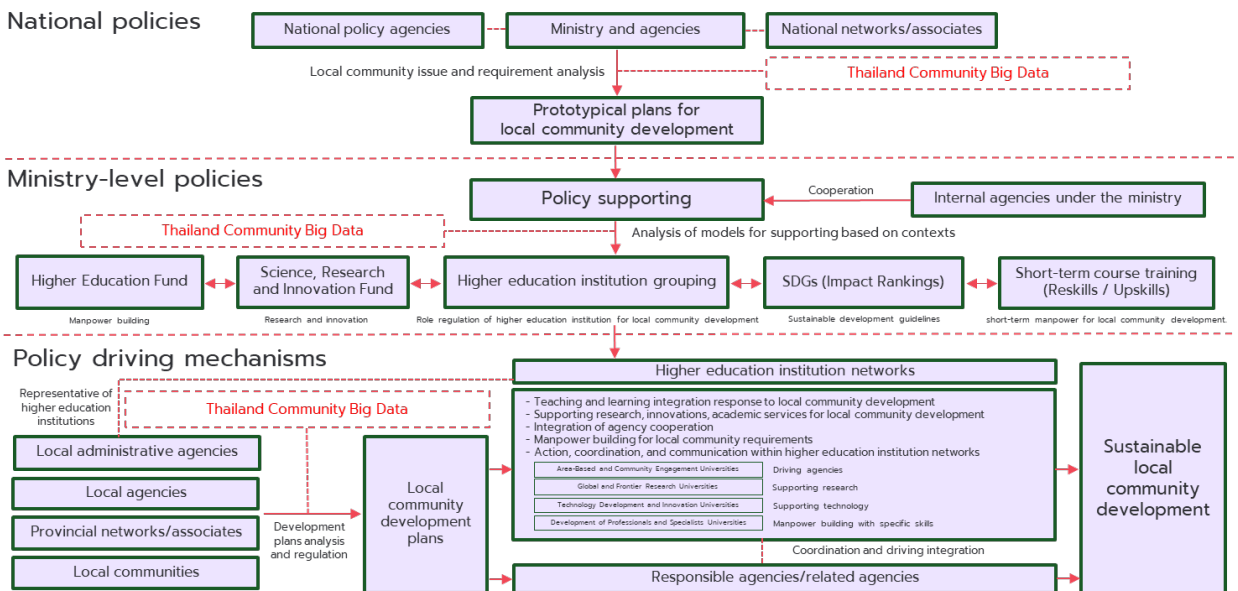


Figure 8 Models to strengthen higher education institutions for sustainable local community development

Policy Implementation and Driving Mechanisms

1) National Policies. The proposed models provide a framework for national policies aimed at sustainable local community development. To ensure effective policy formulation, agencies under the Ministry, associate members, and national network organizations should collaborate to analyze community challenges and develop strategic action plans aligned with local needs. These policies should be informed by Thailand Community Big Data, a centralized database derived from U2T and U2T for BCG, which serves as a critical resource for policy analysis and decision-making.

2) Ministry-Level Policies. At the ministerial level, the proposed models support the Ministry's efforts in aligning its missions and responsibilities with local community development plans. The Ministry of Higher Education, Science, Research, and Innovation (MHESRI) plays a pivotal role in regulating and facilitating policy implementation through various initiatives. Specifically, the Ministry supports: Directly related agencies and specialized institutions in carrying out their development mandates, Knowledge transfer, technology dissemination, and innovation development, Capacity building initiatives for HEIs and local communities.

Key policies, mechanisms, and projects supporting these efforts include:

- Higher Education Fund and Science, Research, and Innovation Fund, which finance human resource development and research-driven innovation,
- HEI grouping policies, which define the roles of HEIs in local development,
- SDG-aligned policies (e.g., THE Impact Rankings), serving as guidelines for sustainable development,
- Short-term training programs (Reskilling/ Upskilling) to enhance the capabilities of local communities.

The Ministry, in collaboration with affiliated agencies, will oversee the integration and implementation of these policies, utilizing insights from Thailand Community Big Data.

3) Policy Implementation Mechanisms. The proposed models serve as mechanisms for driving policy implementation at both national and ministerial levels. Through U2T and U2T for BCG, the models incorporate HEI grouping policies, ensuring that HEIs specializing in Area-Based and Community Engagement lead efforts in sustainable local community development, while other institutions provide necessary support.

Key implementation steps include:

- Collaborative efforts between HEIs and government agencies to analyze and regulate local development plans,
- Utilization of Thailand Community Big Data for informed decision-making,
- Structured coordination between national, ministerial, and local policy levels, ensuring that HEIs play a defined role in community engagement,
- Establishing systematic communication frameworks between HEIs and local communities to facilitate knowledge transfer and problem-solving.

The policy initiatives and projects led by MHESRI from 2019 to 2023, including HEI grouping policies, U2T, U2T for BCG, and THE Impact Rankings initiatives, have demonstrated their effectiveness in enhancing HEI involvement in sustainable local development. Therefore, future policies should clearly define the roles and responsibilities of HEIs and local communities, fostering active cooperation and participation in sustainable development efforts.

Discussion

Quantitative and qualitative analyses confirm that the policies and initiatives implemented by MHESRI and HEIs (2019–2023)—including HEI grouping, U2T, U2T for BCG, and THE Impact Rankings for SDG implementation—are effective frameworks for strengthening HEI contributions to local community development.

Findings indicate that: 1. HEIs played a key role in implementing these models at a high level, ensuring effective knowledge transfer and skill development within local communities and 2. The proposed models demonstrated a high degree of completeness and strong alignment with local development principles, particularly in knowledge transfer, community capacity building, and HEI-community collaboration.

Key Policy Considerations

- The most impactful initiatives for local development were the U2T and U2T for BCG projects, which successfully addressed diverse community needs and facilitated research, technology, and innovation transfer.
- These projects not only enhanced HEI-local community collaboration but also contributed to skill development and economic resilience post-COVID.
- Therefore, the proposed models primarily build upon the frameworks of these projects to further

strengthen HEI contributions to sustainable community development.

Validation of the Proposed Models

To ensure their effectiveness and relevance, the models were evaluated using: Focus Group discussions, which confirmed their suitability and alignment with policy objectives, and In-depth expert interviews, which further validated their completeness and feasibility for policy integration.

Alignment with Previous Research

The findings of this study align with existing literature, including Ekwarakorn et al. (2021), Phatranukrom (2017), Leal et al. (2023), and Agusdinata (2022), which highlight: The importance of HEI participation in local community development, the role of HEIs in integrating academic research with societal impact, The significance of collaborative frameworks that link HEIs, local governments, and community stakeholders.

Factors Enhancing HEI Contributions to Local Community Development

Key factors influencing HEI participation in sustainable local development include:

1. Well-defined roles and networks for HEIs to drive policy initiatives,
2. Integrated teaching, research, and innovation frameworks that address local challenges,
3. Strong coordination and communication mechanisms between HEIs, local communities, and policymakers,
4. Policy support for HEI involvement in knowledge transfer, academic services, and capacity-building programs for local communities.

Conclusion and Policy Implications

The results demonstrate that the policies and strategic initiatives of MHESRI and HEIs (2019–2023) have significantly contributed to local community development by fostering collaboration and participation among key stakeholders.

To ensure long-term impact, the models should be institutionalized through national and ministerial-level policy regulations that:

- Clearly define the roles of HEIs, government agencies, and local communities,
- Establish structured collaboration mechanisms between HEIs, policymakers, and local stakeholders,
- Enhance policy integration across different levels of governance,

- Promote active HEI participation in sustainable development initiatives, ensuring that their expertise and research capabilities are effectively utilized.

The developed model provides a comprehensive framework for leveraging HEI expertise in sustainable local community development through knowledge exchange, community engagement, and innovation-driven problem-solving. Future policy efforts should focus on enhancing these collaborative mechanisms, fostering greater HEI involvement in policy formulation and implementation.

Suggestions

The completeness and suitability of models to strengthen HEIs for sustainable development of local communities were proven by expert committees of the MHESRI, committees, subcommittees, working groups, experts in higher education, executives of higher education institutions in Area-based and Community Engagement group, expert researcher in local community development, and local community leaders. Thus, the models should be used to prepare the policy proposals for the MHESRI for sustainable local community development actions.

The MHESRI should conduct research to develop models encouraging HEIs for sustainable local community development according to changing context for the future and drive the policies through higher education networks to establish HEIs management systems for mission and area-based management, and achieve integration and collaboration between HEIs and local communities.

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