Health Research System for Sustainable Health Reform in Thailand

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Abstract   During the past two decades health research has contributed substantially to health system development in Thailand. Health system has been increased its system complexity and thus increases demand for health research for further development. This paper is aimed to explore the current health research system in Thailand and its capacity to cope with the increasing demand. Literature review and in-depth interview of key informants were used for data collection. In addition, a series of brain-storming meetings and a synthesis workshop were organized to help analysis and to draw recommendations for future development.

It was found that the national health research system was facing many problems including lack of leadership, limited health research resources both research budget and health researchers with inefficient use. Strengths of the system which could be a foundation for future development included an establishment of autonomous research funding agencies which created a productive working environment for health researchers to work effectively and a new working model called "triangle that moves the mountain" which involved stakeholders and civic groups in the research management process which could promote research utilization and health system change based on knowledge. In addition, capacity building has been shifted from a conventional formal training model to on the job training under mentorship of senior health researchers.

It is recommended that capacity building of health researchers is urgently needed and this has to be done on the job-training basis. Mobilization of additional research budget is needed not only for supporting more research studies required for on-going health system reforms but also for capacity building. A possible solution for mobilizing addition research budget is through making research more responsive to demand of other public organizations. Using earmarked budget, 1 percent of total health budget, by enactment of the National Health Research Bill could be a long term solution and needs a strong political support. Research management system needs to be strengthened through competent research managers. Increasing management capacity of these research managers needs a special training programme and research management tools. Finally, strengthening leadership of national health research system needs a structural reform. However, a temporary solution is to use an existing health research funding agency to perform this leading function with an acceptance of other health research funding agencies.

Key words: *health research system, research management*

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บทคัดย่อ   ระบบวิจัยสุขภาพเพื่อการปฏิรูปสุขภาพที่ยั่งยืนในประเทศไทย
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สถาบันวิจัยระบบสาธารณสุข กระทรวงสาธารณสุข

การวิจัยสุขภาพมีส่วนช่วยสนับสนุนการพัฒนาระบบสุขภาพของประเทศไทยอย่างมากในช่วง ๒ ทศวรรษที่ผ่านไป. อย่างไรก็ตาม บริบทต่าง ๆ ที่เปลี่ยนแปลงไปทั้งในระดับสากลและระดับประเทศ รวมทั้งความซับซ้อนของระบบ สุขภาพที่เพิ่มขึ้น ทำให้ความต้องการการวิจัยสุขภาพเพื่อสนับสนุนการแก้ไขปัญหาในปัจจุบันและอนาคตเพิ่มขึ้นอย่างมาก. การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อประเมินระบบวิจัยสุขภาพของประเทศไทยในมิติต่าง ๆ โดยใช้การทบทวนวรรณกรรม, การสัมภาษณ์เชิงลึกผู้ทรงคุณวุฒิ และการประชุมระดมสมองเพื่อให้ได้ข้อเสนอสำหรับการพัฒนาระยะต่อไป.

จากการศึกษาพบว่าระบบวิจัยสุขภาพของประเทศไทยกำลังประสบปัญหาหลายด้าน ตั้งแต่การขาดองค์กรนำที่ชัดเจน, ขาดทรัพยากรที่เพียงพอและขาดประสิทธิภาพในการบริหารจัดการ, การจัดตั้งหน่วยงานผู้ให้ทุนและบริหารจัดการวิจัยที่ เป็นองค์กรอิสระ เช่น สำนักงานกองทุนสนับสนุนการวิจัย (สกว.), สถาบันวิจัยระบบสาธารณสุข (สวรส.) มีส่วน สนับสนุนการพัฒนางานวิจัยสุขภาพอย่างมาก. แนวคิด "สามเหลี่ยมเขยื้อนภูเขา" ได้ช่วยสนับสนุนการเชื่อมโยงงาน วิจัยไปสู่การปรับเปลี่ยนนโยบายจนประสบความสำเร็จในหลายกรณี. การพัฒนารูปแบบการพัฒนาศักยภาพบุคลากรทาง ด้านการวิจัยได้ปรับเปลี่ยนจากรูปแบบการเรียนการสอนแบบเดิม ไปสู่การเรียนรู้จากปฏิบัติการจริงมากขึ้น.

ประเด็นที่ควรให้ความสำคัญในการพัฒนาระยะต่อไปคือ การเสริมสร้างและพัฒนาศักยภาพบุคลากรทางด้านการวิจัย ผ่านกระบวนการเรียนรู้ระหว่างปฏิบัติงาน, การระดมทรัพยากรเพื่อใช้สำหรับการวิจัย และการพัฒนาบุคลากรทางด้าน การวิจัยสุขภาพมากขึ้น. ทางเลือกในการระดมทรัพยากรส่วนหนึ่งได้มาจากการทำงานวิจัย เพื่อตอบสนองต่อความ ต้องการหน่วยงานผู้ใช้มากขึ้น.   การผลักดันให้มีกฎหมายสำหรับการวิจัยสุขภาพเฉพาะ โดยมีการกำหนดกรอบ งบประมาณที่ชัดเจน น่าจะเป็นเป้าหมายระยะยาว. นอกจากนี้ยังมีความจำเป็นต้องพัฒนาประสิทธิภาพระบบบริหาร จัดการงานวิจัย โดยการพัฒนาเครื่องมือต่าง ๆ ขึ้นมา พร้อม ๆ กับการพัฒนาให้เกิดองค์กรนำสำหรับการวิจัยสุขภาพ ของประเทศในอนาคต.

คำสำคัญ: *ระบบวิจัยสุขภาพ การบริหารจัดการงานวิจัย*

1. Introduction

Despite impressive success in health system de velopment in Thailand, its health system is still facing several challenges and, having gone through several reform periods,[1] needs continuous reform. Recent reforms of health system in Thailand included establishment of universal healthcare coverage system,[2] enactment of National Health Act 2007[3] and Control of Alcohol Beverage Act 2008,[4], to name a few. These have been supported by substantial health researches. Knowledge generation through research has been identified as a crucial component to improve health system for a long time but an important landmark of health research system development occurred in 1992 when the Thailand Research Fund (TRF) and the Health Systems Research Institute (HSRI) were established as effective research management and

funding agencies. However, overall development of national health research system lags behind what is needed to tackle with rapid increase of system complexity.

This paper aimed to assess the health research system in Thailand in various dimensions in order to recommend policy to improve the performance of national health research systems. This paper covers analyses of leadership and governance, resources for research systems and utilization of health research for policy decision and integrate them into practices. Methods covers literature reviews and in-depth interview of key informants, including 3 senior researchers and 24 research managers. In addition, a series of brain-storming meetings and a synthesis workshop had been organized in May 2008 to draw recommendation for the future development of health research

system. This paper is prepared as one of five country case studies for the preparatory meeting in Bangkok in June 2008, prior to the Bamako Summit end of 2008.

2. Present situation of health research system

2.1 Leadership and governance

2.1.1 Institutional arrangements

Since 1959, the National Research Council of Thailand (NRCT) has been established through an Act as a national policy body for development of overall research system in Thailand. NRCT also provides funding support directly to researchers for research proposals relevant to national research policy. NRCT develops a five-year National Research Policy and Strategies and uses it as a tool to direct public investment in research. Research budget requested by all government offices, except autonomous research funding agencies, needs to be considered by the NRCT before getting approval from the Bureau of Budget (BOB).

The current 7th National Research Policy and Strategies (2008-2010) has 5 research strategies and health research is part of the 2nd strategy which focuses on developing and strengthening national potential and capability for social development. The priority research areas under this national health research policy include health promotion, emerging diseases, efficient health service delivery system, rehabilitative care, consumer protection, traditional, and herbal medicines.[5]

In 1992, Thailand Research Fund (TRF), Health Systems Research Institute (HSRI) and National Science and Technology Development Agency (NSTDA) were established as autonomous research funding agencies through legislations. These three research funding agencies have different focuses and management approaches, summarized in Table 1.

Table 1 Main characteristics of TRF, HSRI and NSTDA

	Research areas	Support of area based	In-house research	Capacity building
TRF	Basic research and research & development focusing on agriculture, industry, services (esp. logistics of agricultural products, tourism and education) and energy areas	✓	Prohibited	A specific PhD grant program & empowerment of researchers through participatory and experience exchange process domestically and internationally
HSRI	Health system and health policy research to support health system reform	✓	Based on policy in different periods	Empowerment of researchers through participatory and experience exchange process
NSTDA	Research & development to support science and technology development (bio-medical and clinical research)	✓	Mostly in-house, >80% of grants	Training and providing grants to young researchers to work with senior researchers

TRF is not allowed, by its law, to conduct research by its own staff while HSRI used to conduct in-house research by its own staff at the beginning but later on transferred this task to their alliances/networks. NSTDA has its own research facilities to absorb 80 percent of research fund.

Recently, the newly established public autonomous organization such as Thai Health Promotion Fund (Thai-Health) also plays a vital role in supporting health research. Thai-Health was established in 2001 and is solely funded by earmarked "sin tax" from tobacco and alcohol to support health promotion activities and to empower civil society organization. Thai-Health started to provide significant support to health policy research, mainly through the management of HSRI, since 2002.

The Ministry of Public Health (MOPH) and the Ministry of Education (MOE) are two other public organizations which function as research funding agencies as well as research institutes. Most of health researchers work in these two organizations. In addi-

tion to their own research budget which is strongly directed by the NRCT, they are the main recipients of all other research funding agencies.

It is unknown how large the private for profit enterprises support health researches, especially pharmaceutical industries. There are only two non-for-profit organizations, National Health Foundation (NHF) and Thailand Development Research Institute (TDRI), which have prominent role in managing and conducting health research. NHF was established in 1991, with initial financial support from an international donor agency. NHF plays a crucial role in coordinating and managing health and biomedical researches, supported by various local research funding agencies, which could support health system development. TDRI was established in 1984 as a policy research institute to provide technical and policy analysis that supports the formulation of policies with long-term implications for sustaining social and economic development of the country. TDRI though focused on economic researches, however, involved in health
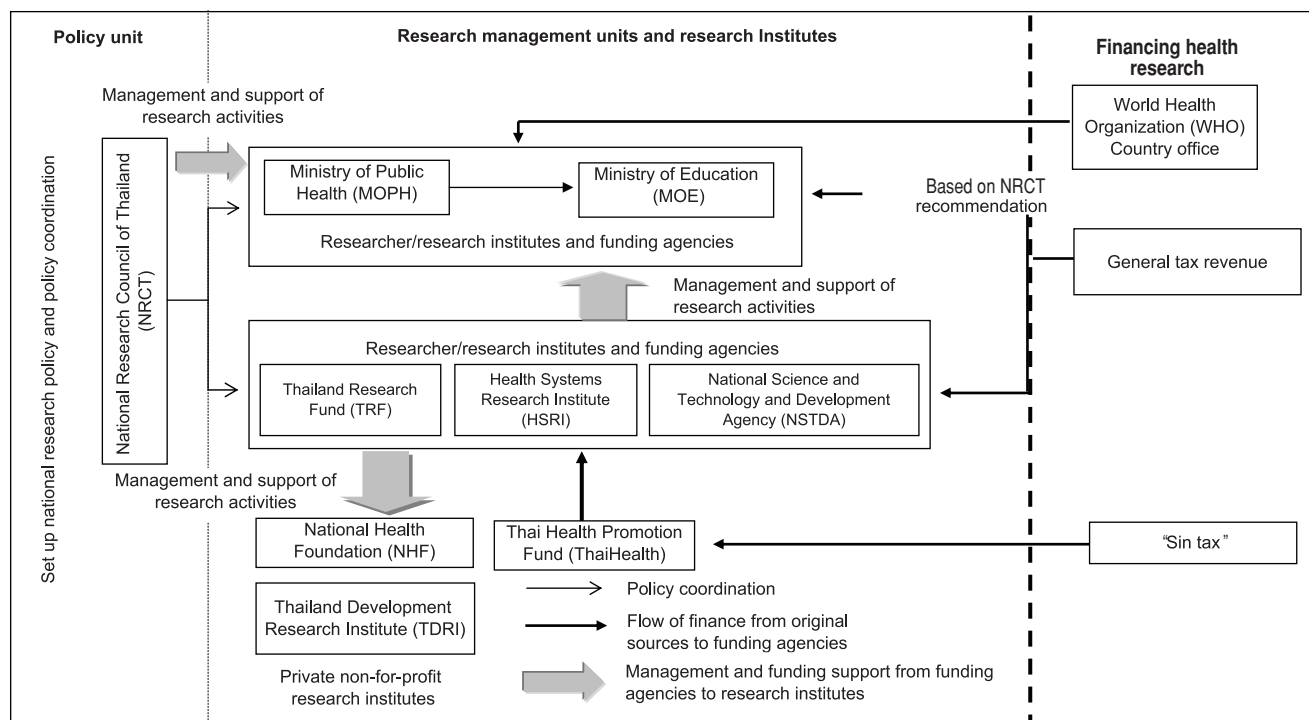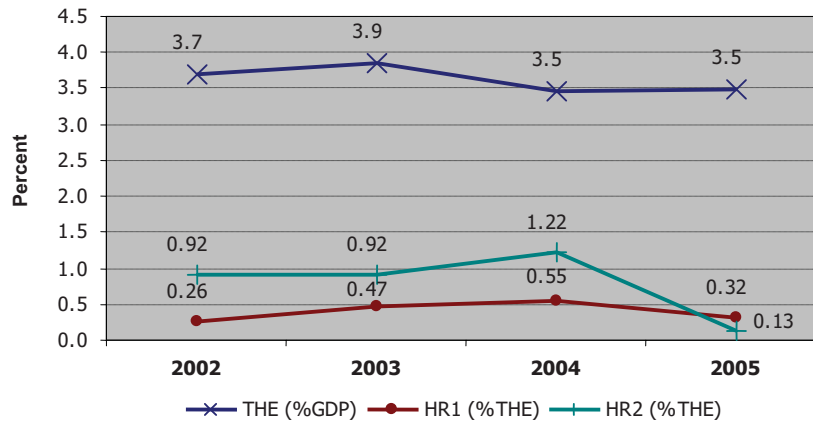

Figure 1 Institutional arrangement of the health research system in Thailand

Note: HR1 = Health research budget based on the study by Hanvoravongchai, P et al.
(2007).

HR2 = Health research budget based on national health account data studied by
the International Health Policy Programme-IHPP (2007).

The data from HR1 obtained from a survey of main public health research
funding agencies and, therefore, were lower than those from HR2, which tried to cover
all health research budgets from every source.

Figure 2 Total health expenditure and health research expenditure in Thailand: 2002-2005

research during the last decade especially in development of universal healthcare coverage policy.

Organizations involved in health research system in Thailand and its relationship can be presented in Figure 1.

2.1.2 Leadership

Although NRCT is expected to be a policy body of research system development in Thailand, its leading role is rather limited. The bureaucracy of NRCT limits participation of high qualify staffs especially research managers and, therefore, limiting organizational capacity. In addition, NRCT has little influence on priority setting and budgeting process of all autonomous health research funding agencies.

Leadership of health research system is worse than that of research system. Many organizations involve in health research system but there was no organization to steer and coordinate the whole health research system. Each organization has its own priority setting and research management approach without an effective coordination mechanism that might result in fragmentation and lack of synergistic

use of limited funds.[6]

Recently, there was an initiative to reform health research system by amending the Health Systems Research Act 1992. According to the draft law, HSRI would be changed to the National Institutes of Health (NIH)* and would act as a secretariat office of the National Health Research Committee (NHRC). NHRC would set up national health research policy and oversee management of NIH. Initial endowment fund of Baht 1 billion or approximately US$32.25 million** and regular budget support of 1 percent of total health budget or approximately US$4.6 billion† would be provided annually to NIH to ensure sufficient health re-

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* At the moment, there is an organization under the Department of Medical Science called National Institute of Health (NIH) but its mandate focuses mainly on laboratory research and providing laboratory services. The proposed new organization would perform as US National Institutes of Health which comprises 27 institutes and centers and provides researchers with leadership and financial support.
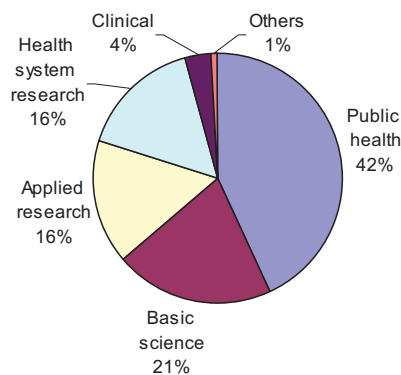
** Based on currency exchange rate 1US$ = 31 Baht

† Calculation based on health budget in the 2008 fiscal year = 141,833 million Baht
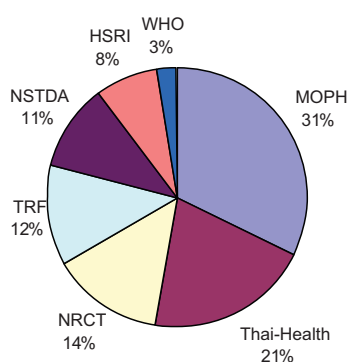
Source: Hanvoravongchai, P et al. (2007)

Figure 3 Distribution of research budget by funding agencies

Source: Hanvoravongchai, P et al. (2007)

Figure 4 Distribution of research budget by types of health research

search budget. Unfortunately, this draft law had not been submitted to the cabinet for resolution because of the lack of political support.[7]
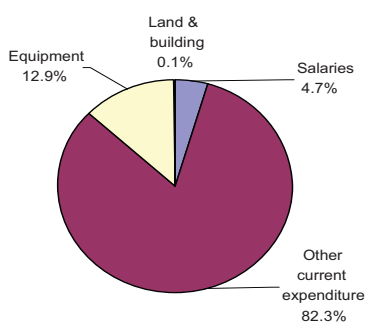
2.2 Health research resources

2.2.1 Health research budget

It is recommended that developing countries should spend at least 2% of their national health expenditure in research and research capacity strengthening.[8] However, during 2002-2005 the average budget spent for health research in Thailand was only 0.37-0.78 percent of total health expenditure, much less than the benchmark of 2 percent (see Figure 2). The average total health expenditure during the same period was 3.6 percent of Gross Domes-

tic Product (GDP).

Based on the analysis of research budget during 2002-2006,[6] it was found that about one-third of research budget was managed by the MOPH. Distribution of research budget by funding agencies is shown in Figure 3. Almost half of research budget was spent on area of public health. Research budget spent on clinical research was only 4 percent of total research budget. Distribution of research budget by types of health research is show in Figure 4.

NRCT conducted a survey and found that in 2005 budget for health and medical researches, spending on salary of research personnel, equipment, land and building were 4.7 percent, 12.9 percent and 0.1 per-

Source: NRCT (2007)

Figure 5 Distribution of research budget by type of expenditure in 2005
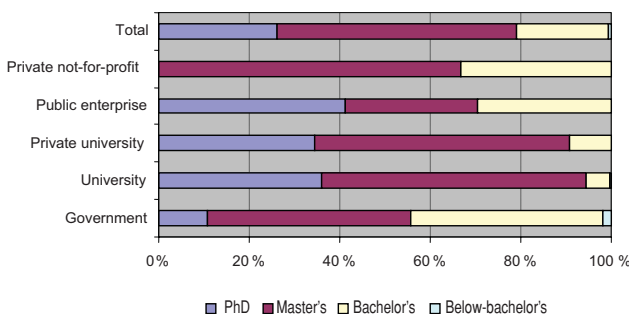
Source: NRCT (2007)

Figure 6 Educational background of health researchers in different organizations

cent respectively.[9] The majority of the budget was used for current expenditure, including per-diem of researchers (see Figure 5).

2.2.2 Health researchers

Although budget allocated for health research in Thailand is quite low as compared to the benchmark of 2 percent of total health expenditure, shortage of competent health researchers is even more severe. Based on recent survey of NRCT,[9] it was found that there were 4,687 health researchers nationwide and almost all of them worked in public sector. There was only 0.92% of health researcher work in private sector. Among those who worked in public sector, 69 percent were university staff, 52.9 percent of health researchers were master-degree graduates. Health researchers with doctorate and bachelor degree were 26.2 percent and 20.2 percent respectively. Educational background of health researchers in different organizations is shown in Figure 6. NRCT also found that most of researchers were part-time researchers. The full-time equivalent (FTE) researchers, in person-year, were only 0.6 of total number of researchers.

Shortage of health researchers is a result of many underlying problems and these include;

- Career of health researchers in public sector is unclear. Although there are some academic positions in MOPH and their career promotion could be as high as administrative positions, unfortunately, these positions are not used to promote health researchers. Assigning civil servants to these positions is not based on their academic competencies and their technical contribution to the system.

- University and academic institution emphasize on teaching more than doing research. Some researchers informed that they got complaints from their bosses and colleagues about their research works which could negatively affect their teaching responsibility.

- Researcher is not a popular profession, as compared to physician, dentist, pharmacist, nurse and etc, and its role has less public recognition. Income of researchers was irregular, except those who work

in research institute and get regular salary, since it would be based on the number of contracted research projects.

2.2.3 Capacity building

Capacity building covers what beyond generally understood of a conventional training of individuals, it encompasses a comprehensive approach of human resource development, institutional and legal framework development which provide enabling environment for maximum contributions of researches in a sustainable way.[10] Concerning institutional capacity development of health researchers in Thailand, there are some impressive experiences where lessons can be drawn as one of several models in capacity building. For example;

- Field Epidemiology Training Programme (FETP): established in 1980 by Communicable Diseases Control Department of the MOPH, with the support of the World Health Organization (WHO) and Center for Disease Control and Prevention (CDC) in Atlanta. FETP is a two-year training programme in epidemiology and Bureau of Epidemiology, MOPH is a training center as well as performing its epidemiological functions. Strength of FETP is based on its approach using on the job training and regular exchange of practical experience in the field of diseases surveillance, outbreak investigations and outbreak containments, with minimal lecture only 1 month in 2 years. At the moment, there are 25 batches of trainees with 109 graduates who are actively in many key positions in health system either at provincial or MOPH level. Undeniably, FETP alumni are the backbone of a functioning diseases control systems in Thailand.

- International Health Policy Programme (IHPP) Thailand: established in 1998 with initial support from the Senior Research Scholar (SRS) Programme of TRF. It's sole mandate is to build up and sustain capacity in health policy and systems research. From 1998-2007, IHPP supported 17 Masters, 5 certificates and 14 PhD and most of them were academically active with substantial contribution to health system development where IHPP plays a major role in key policy decisions in health systems reform in the past de-

cade.[11] Key successful characteristics of IHPP include strict recruitment criteria for research apprenticeship of young and talent public health workers for a few years, conduct policy relevant researches under mentoring of senior researchers, prior to placement for doctoral training, and post-doctoral research assignment upon return.

- Health Intervention and Technology Assessment Programme (HITAP): a budding agency of IHPP, established in 2007 with multi-source funding from HSRI, Thai-Health, National Health Security Office (NHSO) and MOPH. The prime mandate of HITAP is to provide empirical evidence on cost-effectiveness or cost-utility of health interventions to inform policy decisions whether to adopt new medical and health technologies. HITAP develops a clear linkage with policy decision in national health insurance schemes and National Essential Drug Committee. In addition to generate evidence, HITAP also aims to invest in health researchers in this area. Similar to its mother organization-IHPP, HITAP emphasizes strict recruitment criteria of young researchers and assigns senior researchers to work with them closely as partners in conducting relevant policy researches. Within 1 year of establishment, HITAP could attract more than 20 new researchers both masters and post-doctoral from the pool in Universities either on a full- or part-time basis, to work in the programme with an impressive performance.

2.3 Research management

2.3.1 Priority setting of research agendas

As mentioned earlier, each research funding agency had its own criteria to prioritize research agendas for funding support, Prioritization criteria varied, but closely related to each organizational mission and strategy. Using Burden of Disease (BOD) as a criterion to prioritize research agendas, we found a serious mis-match, only 10 percent of health research budget went to high-burden diseases.[6] However, BOD might not be a good criterion since it will focus only on disease problems not health problems of the population in a broader sense. HSRI uses a "research mapping"[12] to set up priority research agendas but this approach is not well-accepted by all research funding agencies. In summary, there is no consensus on approach used for priority setting of health research agendas now.

2.3.2 Quality assurance mechanism

Expert review has been used as the main approach for ensuring a quality health research in Thailand but this would focus mainly on technical or scientific aspects of research. There are some similarities of assessment forms although common framework for assessing research quality has not been developed and well accepted by all concerned agencies.

However, quality of research should be more than its scientific soundness but should also include its output or impact.[13] It means that the research should be successfully applied by end-users and lead to a change in decision. Mechanism and process to ensure effective research policy interfaces were discussed in section 2.4.

Ethical review is another crucial component of research quality assurance to ensure standard protection of human subjects in research. Ethical review is quite new in Thailand and most of health researchers are not familiar with this process. At present, an ethical committee has been established in almost every academic institution including MOPH. However, ethical review processes were conducted on different standard and was a time-consuming process. Some human experimental researches still could be conducted without ethical review.[14] These could discourage researchers to comply with this process. Recently, HSRI has established the Institute for the Development of Human Research Protections. This office is aimed to develop national standard for ethical review and to support all ethical committees across different agencies to achieve this standard. Legislation on Human Experimentation has already been drafted but has not been adopted yet.

2.3.3 Networking with national and international partners

Thailand, as many other developing countries, received substantial external technical supports for

health development, both from bilateral and multilateral collaborations. These included scholarships for overseas trainings and created opportunity for strengthening capacity of Thai health researchers as well as establishment of long term relationship with some academic institutions in developed countries. Some of these academic institutions included Center for Disease Control and Prevention (CDC) in Atlanta, USA for strengthening epidemiological system, Institute of Tropical Medicine (ITM) in Antwerp, Belgium for strengthening public health system especially primary care, and London School of Hygiene and Tropical Medicine (LSHTM) in UK for strengthening health policy, financing and health economics. There are a number of ongoing collaborative researches between Thai health researchers and national and international institutes.

At the national level, HSRI, TRF and Thai-Health also support networking of health researchers. This aims to empowerment them through exchange of experience and to create synergistic effect of their research works. For HSRI, there are more than 20 research networks working under its support. However, its expected effect of networking could not be fully achieved because of the less involvement of research networks.

2.4 Linking research to policy and practice

The Theory on "triangle that moves the mountain"[15] proposed by a senior social leader, Professor Prawase Wasi, has been used to promote knowledge based health system development for more than a decade. This principle emphasizes the integral link among the three main determinants for successful policy decisions: knowledge generation, social movement and political domains. This theory has been applied and proven successful in many recent health reform movements in Thailand.

Involving stakeholders in the processes of research (propose policy relevant questions, research objective, and regular informed of the results) since the beginning is a crucial step to promote the use of research result. The conventional approach to present research result with recommendation to policy mak-

ers at the late stage of research project seems to fail to convince the policy makers.[12] The common practice for this approach, used by many research management agencies, is to set up a steering committee, including all stakeholders and senior researchers, to oversee the whole process. This could be an approach to integrate research into policy process.

Having relevant research questions is important to promote the link of research into policy and practice. Research mapping is an effective research management tool to set up relevant research questions in a comprehensive approach and this changes research project based on specific research questions to a thematic research plan.[3,12] It is proposed that this thematic research plan is managed in an integrated way.

3. Challenge and opportunity

3.1 A functional leading organization: A solution for leadership problem

The recent initiative to draft a law to transform HSRI to be a lead agency of health research system demonstrated concerns of stakeholders to improve leadership of the system. However, failing to enact the proposed law because of the lack of political support led to another proposal.

The new proposal still expected HSRI to act as a lead agency of health research system but on a functional basis.[7] HSRI was expected to coordinate all health research funding agencies, without authority and financial power, and to harmonize their works to fit with the prioritized health research agendas. The first attempt of HSRI to achieve this expectation was a process to synthesize research outputs, supported by various health research funding agencies, to improve well-being of Southern Muslim people under the civil unrest and conflicts situation. HSRI was a leading organization to coordinate with NRCT, TRF, Thai-Health, NHSO, local academic institutes and civic groups for the synthesis and advocacy processes. This attempt led to a formation of a small task force, comprising of representatives of all research funding agencies, to coordinate and to oversee all researches in the Southern of Thailand.

Some arguments were raised for the new role of HSRI. Strength of HSRI since its establishment was on the health systems research not on the health research. Expanding the role of HSRI to cover all health researches could undermine its current strength especially when there was no additional resource for this. HSRI should focus on health systems research but should extend its partners to cover more than those getting financial support from HSRI.[16]

At present, there is no new prescriptive solution for the problems of leadership of health research system. HSRI might be the most suitable organization to be the leading organization but this could be achieved only when its structure and financial mechanism have been reformed in parallel.

3.2 Overcoming health research resources constraints

Health research resources in Thailand, both health researchers and research budget, are quite limited as compared to international norms. Mobilizing more health researchers and research budget at the same may not be feasible and therefore prioritization is needed.

But this prioritization is looked like the chicken or the egg problem. Without sufficient research budget, it would be difficult to attract competent health researchers into the health research system. On the contrary, it was found that existing research budget could not be spent effectively and efficiently since there was no adequate number of competent health researchers. In addition, training for competent researchers is a time-consuming process.

Mobilizing more health research budget could be the first priority since budget is needed for the capacity building of health researchers, which mainly based on "on the job-training', and more budgets could attract part-time researchers to fully commit to research work. Thai-Health plays an important role in providing additional financial support to health research during the last 5 years though it is not the main mission and could be difficult to sustain.

Another source of mobilizing research budget is from the users of research. At the moment some public organizations, such as NHSO and Ministry of Finance, have allocated budget for research to improve their performance and this is a good opportunity to mobilize more research resources as well as to make research more responsive to the users. Using earmarked budget, 1 percent of total health budget, to finance health research as indicated in the drafted National Health Research Bill could be the best option but this needs strong political support.

3.3 Capacity building through networking of health researchers with collegial support

It was found that conventional formal training may not be enough to create a productive critical mass of health researchers in Thailand. Some outstanding case studies confirm that on the job training with intensive support of senior mentors could be an effective option. However this needs to be done with strict recruitment criteria due to a limited number of capable researchers or mentors. Binding health researcher with administrative procedures of bureaucratic system should be avoided and appropriate organizational and legal framework should be developed to create effective and conducive working environment for health researchers. Establishment of research networks using legal framework of HSRI, and managing under health research thematic management, could be a possible option and has been proved to be an effective model.[3] However, this has to be done together with a system to ensure transparency and accountability of research management system.

3.4 Role of health researcher or research manager in policy advocacy

As mentioned earlier, involvement of policy makers in the research management process since the beginning is critical to ensure the use of research outputs but who should manage this process? It is also interesting how much this person has to do to intervene and manipulate the policy process to achieve expected policy changes. The strengths of health researchers are their technical competency and these might not be compatible with those required for the management of the proposed process, though a very few number of researcher can do this function. In

addition, too much involvement of health researchers in the policy process, with or without pre-determined solutions, could threaten their independence and impartiality and damage their technical credibility in the long run[17].

It is expected that a new profession called "research manager" should perform this advocacy function in addition to other research management tasks. At the moment some health research funding agencies in Thailand have a staff position called a research manager but with different expected roles. There is no specific training programme for this profession and its career development is quite unclear. There is a need to building up this research management capacity to maximize the use of research results in policy process. However, challenges for research manager are numerous, for example their technical capacity and good understanding of the subject matter, and credibility in advocating policies as well as sustaining them in this career.

4. Conclusion and recommendations

Though it seems Thailand is at the forefront of health systems reforms where health systems and health policy researches contributed significantly on evidence based policy decision, health research system in Thailand is still facing resource constraint as well as leadership and coordinating problem while there is an increasing demand for research to support on-going health system reform.

Although the system has been operated under these limitations, research outputs could contribute to recent health system reforms substantially. The strengths are a close link between health researchers and potential users of their researches especially policy makers and the bridging role of policy entrepreneurs.[18] In addition, there is a need to involve civic groups in the process to ensure successful policy change.

More effective health research system could be achieved through various measures. Firstly, there is an urgent need for capacity building of health researchers and this has to be done through on the job-training basis. Existing senior health researchers are

expected to devote part of their times to this capacity building process. There is also a need to create a productive working environment for health researchers which bureaucratic system is proved not be able to serve this objective. A more flexible management system under an autonomous public organization can be used for this purpose but this has to be done with a mechanism to ensure transparency and accountability.

Secondly, additional research budget is needed and it could be mobilized from other public organizations who are users of research results by making health research more responsive to demand of these organizations. Achieving an earmarked budget of 1 percent of total health budget, by enactment of the National Health Research Bill could be a long term solution and needs a strong political support. It is recommended that part of this research budget should be spent on capacity building of health researchers by paying more on personnel cost to allow junior researcher working under mentorship of senior researcher and by paying some long term fellowship for health researchers in selected priority areas of expertise on the condition that these fellows come back and fully commit in long term on health research - "a professional researcher" career path.

Thirdly, there is a need to strengthen research management system to ensure efficient use of research resources as well as to enhance the use of research results for health system development. This could be done through a competent research manager. A special training programme and research management tools need to be developed for this capacity strengthening. Research management tools include guideline for prioritizing research agenda or research mapping, research quality framework, monitoring and evaluation of research study and most importantly skills in "knowledge management" which translate research into several channels of communication to e.g. general public, professional councils, practitioners and policy decision makers.

Finally, there is a need to strengthen leadership of health research system through a structural reform.

This reform has to be well-prepared to minimize undesirable consequences. It's recommended that an existing research funding agency, with a flexible and efficient management system, should perform this leading function temporarily during this transition period.

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