

Evaluating the effectiveness of public finance for household sanitation in rural Thailand



WaterAid/Adra Thailand

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Acronyms and abbreviations

JMP	Joint Monitoring Programme (WHO/UNICEF)
MoPH	Ministry of Public Health
NESDP	National Economic and Social Development Plan
NGO	Non-governmental organisation
PHO	Public Health Officer
WHO	World Health Organisation

The exchange rate used in this study is 1USD = 33 Thai Baht (THB) (as of June 2010).

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The synthesis report and other case studies can be accessed here:
www.wateraid.org/evaluatingeffectiveness



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1 Introduction

1.1 Overview of the WaterAid research project

WaterAid has initiated a research project to evaluate the effectiveness of public financing for sustainable household sanitation in Thailand's rural areas. This project is part of a broader research initiative that includes case studies for urban sanitation in Dar es Salaam, Tanzania, and rural sanitation in India.

The objectives of the overall project are as follows:

- To gather reliable information on the total cost of sanitation provision (including hardware and software).
- To identify the different sources and channels of sanitation financing and determine the share of financing originating from households and public sources for different components of the sanitation 'value chain' (ie from demand creation to collection, treatment and safe disposal).
- To make recommendations about how public finance could be better targeted to accelerate progress towards universal access to sustainable improved sanitation.

The objectives of this case study are different, given that the country has already achieved remarkable success in increasing sanitation coverage. In 1960, less than 1% of Thailand's rural population had access to basic sanitation, but this figure had reached 99.9% by 1999. This dramatic increase is the result of a concerted long term national programme by the Thai Government that successfully employed a range of policy instruments and tools to expand sanitation coverage.

The objective of this case study is to extract the lessons that can be learned from Thailand's example for other countries that still struggle to improve basic sanitation coverage, by understanding the cost and financing policies that contributed to this success.

1.2 Scope of the case study

Rural sanitation coverage in Thailand went from zero to almost universal coverage over 40 years. Progress was achieved with relatively low but effective funding from the Government and development partners, which leveraged large household investments in sanitation. Public funding was principally devoted to software activities, such as capacity building, monitoring and hygiene promotion and, at later stages, supported local mechanisms to overcome constraints at the household level, including difficulties with mobilising up-front cash and overall affordability constraints. The level of service was homogenous during this period, as the Government promoted a unique model of water-seal latrines¹ that fit Thai culture well.

This case study is focused on the implementation of rural sanitation programmes from 1960 to 1999, when almost universal coverage was achieved. The study takes a historical perspective, limited data on budgeting and expenditures was available before 1987. As the programme ended more than 10 years ago, most of the government officials responsible for sanitation policy, design and implementation at the time of the programme were retired by the time of the research. Most documentation was destroyed in 2000 when the emphasis within the Department of Health shifted away from sanitation. As such, very little has been written on the lessons for Thai successes in sanitation.

The case study is therefore based on data available for the 6th and 7th National Economic and Social Development Plans (NESDP) (1987-1996), when the most progress was made.

The study is focused on the provision of sanitation services, defined by the Joint Monitoring Programme (JMP) for Drinking Water Supply and Sanitation, as 'the methods for the safe and sustainable management

1 Although the technology of the water-seal toilet was uniform, different services and products were introduced based on other benefits to households such as less regular emptying and ceramic options that required less maintenance.

of human excreta'. This includes associated hygiene promotion as it supports sustainable sanitation uptake and behaviour change.

However the activities of the Sanitation Division of the Department of Health during the study period were broader than the JMP's definition. The Sanitation Division was also responsible for water supply, food sanitation, excreta disposal (having a latrine for each household), solid waste management, wastewater disposal, cleanliness of the household environment and vector control. Out of these activities, water supply (storage) and construction of latrines have nevertheless made up 80% of the total and include both software and hardware activities.

This case study is specifically focused on the provision of sanitation services at household level. This may include facilities that are shared by a small number of families (eg neighbours) but excludes community facilities (ie shared by transient population in public spaces, such as markets or bus terminals). The study looks at the means by which funds were provided to cover both hardware and software costs.

1.3 Structure of the case study

This case study is structured as follows:

- **Section 2** gives a brief overview of the study area in terms of socio-economic status and access to sanitation in the overall country context.
- **Section 3** introduces the institutional set-up for the provision of sanitation services in Thailand, setting out the roles and responsibilities of the main sector stakeholders and the sources of finance they have at their disposal to carry out their functions.
- **Section 4** assesses the sanitation services provided in Thailand over the study period and estimates the expenditure allocated to the provision of each type of service.
- **Section 5** evaluates the effectiveness of public financing for sanitation in Thailand based on a set of criteria, including comprehensiveness, equity and leveraging.
- **Section 6** draws out lessons from the Thai experience that may be applicable to other countries aiming to increase access to sanitation in rural areas.
- **Annex A** contains a list of supporting documents.
- **Annex B** includes a list of people interviewed.

2 Case study context

2.1 Socio-economic context

Thailand is a constitutional monarchy and a democracy. The King is the head of state while the Cabinet is the body responsible for administrative and government functions. The country consists of 75 provinces, 876 districts and minor-districts, 7,225 sub-districts (or ‘tambon’) and over 70,000 villages.

The National Population and Housing Census shows that the population grew from 26.3 million in 1960 to 60.9 million in 2000, at an average growth rate of 2.6%. The proportion of the population living in rural areas fell relatively slowly from 80% in 1960 to 67% in 2005.

Thailand is now a middle-income country that has seen remarkable progress in social and economic development in the last twenty years. It ranks 87th on the Human Development Index and 82nd in terms of GDP per capita. It will achieve most, if not all, the Millennium Development Goals well in advance of 2015. This remarkable progress has most likely contributed significantly to progress made in the water and sanitation services. However, such progress has not benefited everyone equally, as disparities in income have grown.

2.2 The state of the sanitation sector

According to a 2005 survey, 99.9% of the population nationwide had access to sanitation in 1999. Most of those without access live in remote or water-scarce areas such as borders, highlands or in floating communities by the river. However, although Thailand has nearly achieved universal sanitation, the morbidity rate due to diarrheal diseases has not significantly declined (whereas the overall mortality rate has). To tackle this issue and enhance tourism promotion in the country, the Department of Health has, since 2000, implemented projects related to public toilets, clean and hygienic food and safe drinking water, hygienic behaviour change, and the development of treatment plants in rural areas for septage disposal.

3 Policy framework and institutional set-up

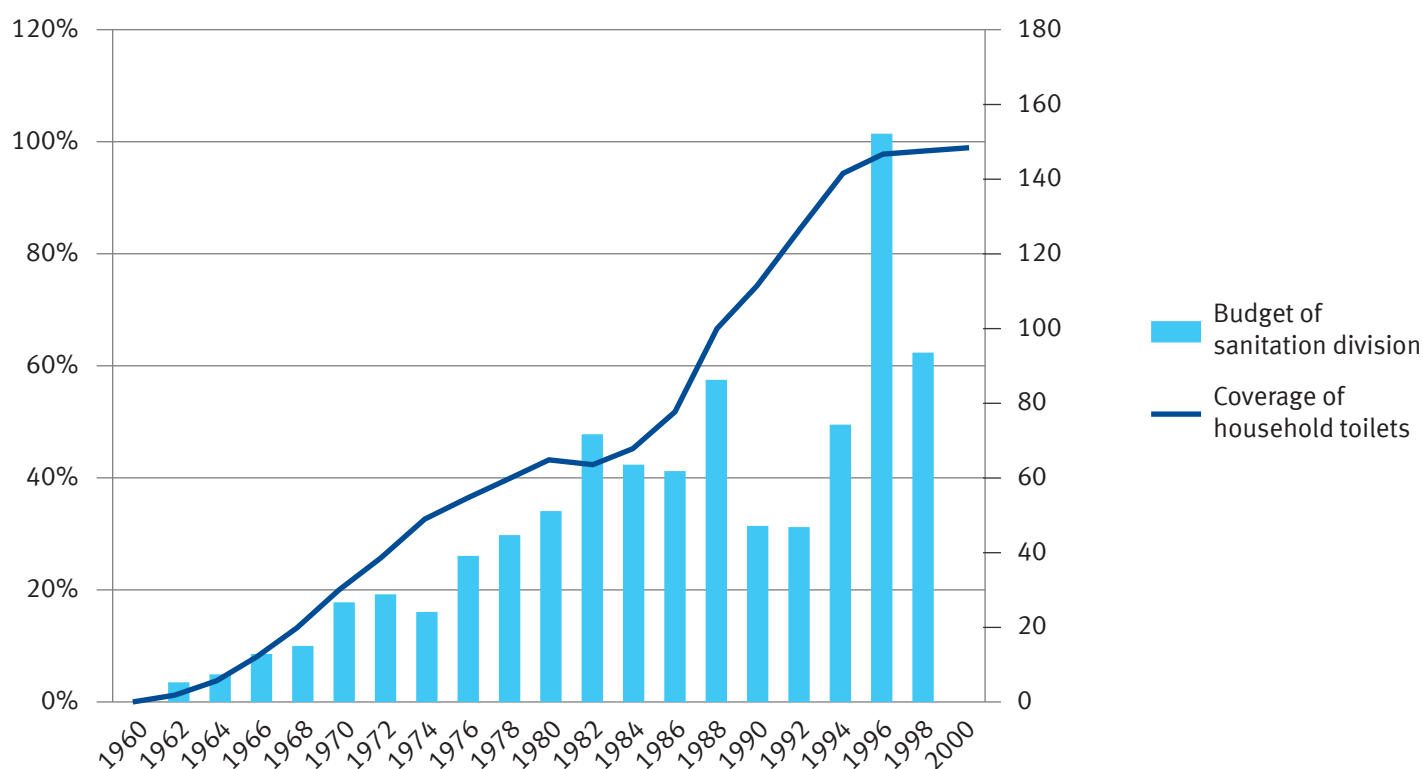
This section sets out the overall policy framework and policy transitions that have resulted in improvements in rural sanitation coverage from 1960 to 1999, together with the shifting institutional framework that has allowed the implementation of such policies (in the context of decentralisation).

3.1 Policy framework

The promotion of sanitation in Thailand dates back to about when Bangkok’s first sanitation law was made in 1897, aimed at curbing communicable diseases. In subsequent years, a number of government programmes were launched. The establishment of the Ministry of Public Health in 1942 led to the integration of environmental sanitation into the overall health development strategy. However, in 1960, rural sanitation coverage was only 0.17%.

Successive sanitation policies have encouraged continuous improvement in latrine coverage in rural Thailand, whereas available funding from the Government remained relatively limited. Figure 3.1 shows how the coverage has improved over the years and tracks the associated budget at national level. Coverage improved rapidly in the initial years (at a rate of almost 150% per year) and then continued to grow rapidly (7-15% of the annual growth rate) until it reached 100%, except from a brief period in the late 1970s and early 1980s where the growth in coverage reached a temporary plateau.

Figure 3.1: Evolution of coverage in rural areas and budget of sanitation division (million THB), 1960-2000



Source: Department of Health

Since 1960, the Thai Government, under the King’s leadership, has made sanitation a priority policy. It has developed an approach that emphasised the importance of local capacity to improve hygienic behaviour in villages, and the solidarity between the most privileged and those who lagged behind at various levels, including villages and households. This approach materialised in various strategies, with a slightly different emphasis over time, as set out in Table 3.1.

Between 1960 and 1976, the government focused on empowering communities, so that they would be able to receive technology and knowledge transfers from national government officials: it included training of local health officials in provincial and local governments and training of health officers in villages.

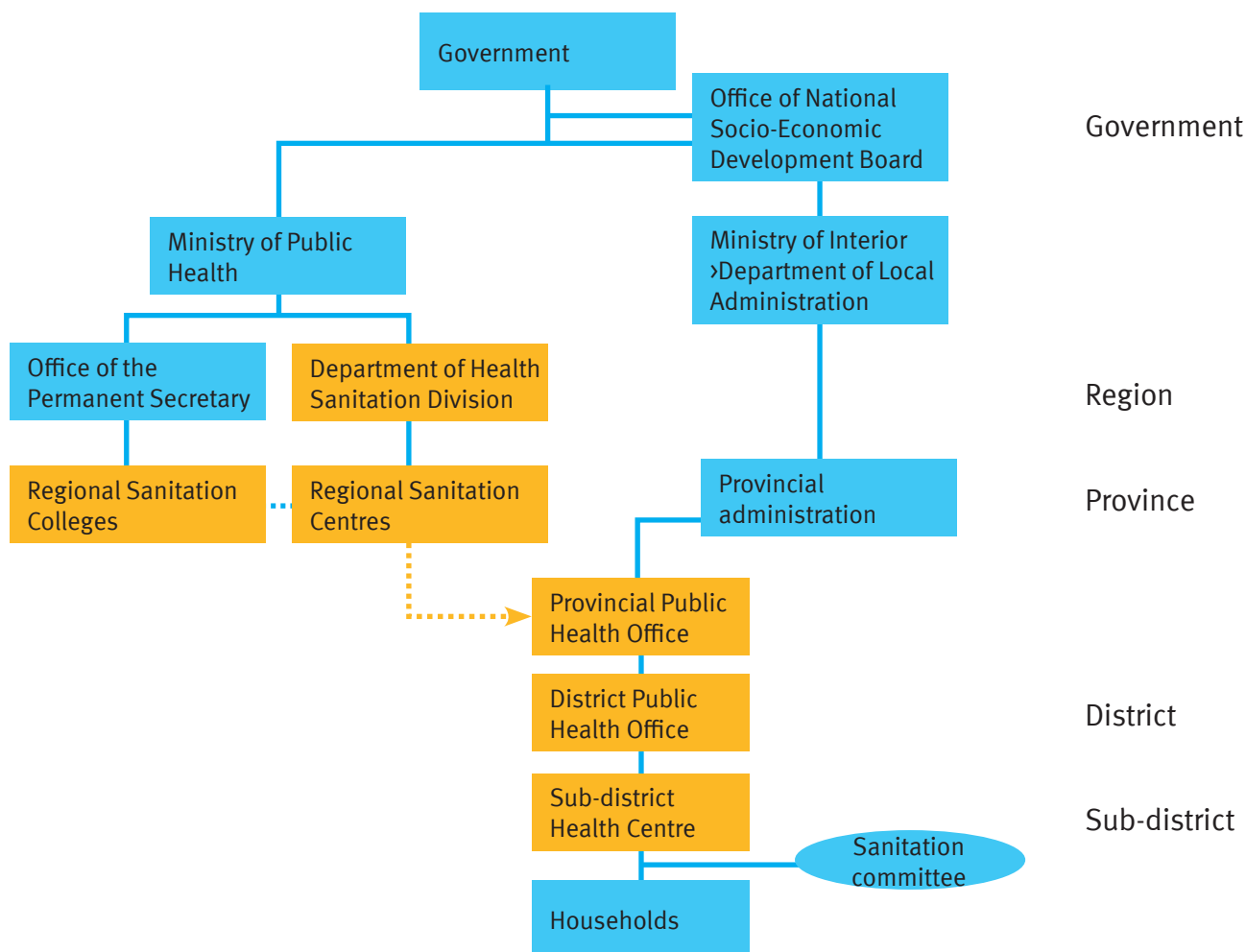
Between 1977 and 2000, the development philosophy shifted to engaging the communities themselves via village representatives, promoting demand and supporting supply (including with training of masons and partnerships with ceramic pan manufacturers, such as American Standard).

Table 3.1: Sanitation programmes 1960-2000

Programme name	Inception date	Summary
The village health and sanitation project	1960	A programme initiated to tackle prevalent water-borne diseases and give an impetus to expand sanitation programmes nationwide, with the support of international organisations, especially WHO, UNICEF and USAID. It was included in the First National Economic and Social Development Plan (NESDP) in 1961 and in the successive five-year NESDP. The project trained health workers to enable them to later expand the programme, empowered communities so that they would not be solely reliant on Government support for building, financing and maintaining sanitation facilities, and focused on research and development of sanitation technologies that would be both hygienic and fit local culture.
'Health for all by the year 2000'	1978	Thailand adopted this programme, initiated by WHO. Among the indicators suggested by WHO to measure progress in health, Thailand decided to use sanitation and water supply coverage. The government strongly pushed for improvements in water supply, excreta disposal and refuse disposal or households outside municipal areas. Selected villages became 'health development villages'. They received sanitation subsidies with the hope that they would later inspire and share knowledge with other less advanced villages.
'International drinking water supply and sanitation decade'	1981-1990	The decade that saw the Government accelerate programme implementation and raise the target for coverage from 75% to 90% nationwide. Learning from past policies that subsidies were not cost-efficient, the government pushed to create revolving funds (see section 4.2.2) at village level. They were managed by local sanitation committees and received the initial capital outlay from the government. The committees were then made responsible to increase coverage through revolved loans.
'Quality of life development campaign'	1985	This campaign set up basic minimum needs indicators to monitor the progress of social and economic development. Of 32 indicators, three were dedicated to sanitation, which raised the profile of sanitation policies in the country.
'100% latrine coverage campaign project'	1987-1988	This project was launched together with the honorary award of the 'Golden ring'. Provincial governors adopted this policy as a priority and competed to accomplish universal coverage in their area for the honorary award of the 'Golden ring'. This competition motivated governors to increase the budget for sanitation in their province and to mobilise additional resources from NGOs or private sources under their leadership. At that time, dedicated officers were assigned to design provincial plans and carefully monitor sanitation progress with a bottom-up approach.
Ministry of Interior policy	1989	This policy bolstered sanitation efforts by requiring all households to have a sanitary toilet before a house could be registered.
'Technology cooperation among developing villages'	1992-1996	These implementation guidelines for technology cooperation, defined by the government, relied on the principle of 'core' and 'extended' villages. In 'core' villages, the government promoted the role of community organisations, especially sub-district councils and sanitary craftsmen, and supported the development of revolving funds. The government encouraged the implementation of an exchange-learning programme between 'core' villages and others that were still to achieve the targeted coverage, through field visits and study tours. Villages, having met the target, could then act as examples for other villages, cascading the effect.

3.2 Rural sanitation institutional set-up

Figure 3.2: Institutional set-up of the rural sanitation sector



The roles and functions of government agencies can be categorised into three levels:

- **Central agencies**, whose functions are to set policies, plan projects and define goals at national level, develop a knowledge base and provide legislative, technical and budgetary support to local agencies.
- **Provincial agencies**, whose functions are operational planning through inter-agency collaboration, technical and budgetary support and implementation and evaluation of sanitation programmes.
- **Local agencies** (district and sub-district levels), which focus on sanitation activities within their area of responsibility, relying on health officers and village volunteers.

The organisation of the sector is strongly hierarchical and health officers have been placed at all levels of Government, from the Department of Health down to the villages.

At the national level, three ministries have been involved in the development of the sanitation sector between 1960 and 1999: the Ministry of Public Health, the Ministry of Interior and, to a lesser extent, the Office of the Prime Minister.

The Ministry of Public Health is the line Ministry for sanitation, through the Sanitation Division of the Department of Health. The Sanitation Division implements sanitation policies, monitors progress and provides technical support to the provincial, district and sub-district health centres through their regional sanitation centres. Regional Public Health Colleges were created under the leadership of the Office of the Permanent Secretary of the Ministry of Public Health to provide training to public health workers. They were critical for building the capacity of public health workers, in parallel with the prominent Faculty of Public Health of Mahidol University, from which most public health officers graduated.

The Ministry of Interior, through the Department of Local Administration, has the management responsibility for provinces, districts and sub-districts. It gives the impetus for policy and planning. It interacts with the Ministry of Health through the National Socio-Economic Development Board, who act as a coordinating body. At local level, the provincial or district public health office works closely with the provincial or district administration.

The Office of the Prime Minister has more of a coordinating role in policy and planning, particularly with respect to the National Economic and Social Development Plan (NESDP).

At the regional level, regional sanitation centres coordinate activities in provinces and provide technical guidance, but do not carry out any sanitation activities directly.

At the provincial level, health centres, although part of the local administration, come under the control of the Department of Health for their operations. They could be assisted by the administration (dependent on the Ministry of Interior) at the same level of government, especially where the Provincial Governor had made sanitation a priority for his province. Health officers at the provincial level are responsible for implementing the sanitation policies decided by the Department of Health. They have an instrumental role in coordinating policies with provincial administration, raising additional resources, monitoring how funds are used at local level through thorough monthly reporting, training health officers at district level and centralising demand for sanitation materials to group orders across the province and lower procurement costs.

At district and village level, health officers reported to the hierarchy of the sanitation division in the province. Their main function was to promote and support the set-up of sanitation committees, composed of volunteers who ran most sanitation promotion efforts locally. Each volunteer was usually responsible for ten households. Their role was to encourage them into getting and using sanitation facilities. Volunteers were not remunerated but could get free healthcare at the local health centre if needed and were recognised through annual incentive meetings at the Ministry of Health. District health officers would also ensure a smooth functioning of the revolving funds by being part of the sanitation committee and channelling the funds from the government.

Those committees were entrusted with making the operational decisions concerning the running of the funds and develop sanitation coverage in their geographical areas of action (see section 4.2.2 for more details about the financing mechanisms of the revolving funds).

4 Sanitation services in rural Thailand

This section assesses the sanitation services being provided in Thailand over the study period and estimates the average levels of government expenditure on such services between 1960 and 1999. In accordance with the overall methodology for this research, we examine each segment of the sanitation value chain separately, ie collection (construction of latrines), transport (emptying latrines), treatment and disposal. In addition, we examine what proportion was allocated to hardware subsidies and to software activities, including activities such as capacity building, demand promotion, supply promotion or monitoring and evaluation.

Given data availability constraints, the study provides a more detailed analysis for the 6th and 7th NESDP between 1987 and 1996, for which more data is available and which constitutes the decade when the highest rate of progress was achieved, rising from around 50% to about 95%². The amounts reported in this section are likely to be underestimates of the total expenditures on sanitation, however, for both public and private spending, as explained in more detail in later sections.

The implementation of the successive sanitation programmes relied on a concerted financing effort between the Department of Health and the provincial administration, which rallied behind what central government had defined as a priority. Resources were mobilised both from within and outside each of the provinces, under the leadership and control of the governor. Data on spending from provincial administrations was not available.

4.1 Software support

From the very inception of sanitation programmes in 1960, the government realised that a sustainable sanitation sector would need to rely on strong implementation capabilities on a local level, thorough monitoring and evaluation of the progress, and active demand and supply promotion for the construction of toilets. About 50% of total public support was directed to software support activities over the study period, including capacity building and training, monitoring and control, demand promotion activities, support to local artisans and support to cover administrative costs³.

Here we present what software support activities have been carried out, before examining the costs of providing such support.

4.1.1 Software activities

From the outset of the programme in 1960, the sanitation division of the Department of Health emphasised the importance of software activities. These activities included training, capacity building, demand promotion, supply promotion and monitoring.

Capacity building and training

Capacity building has been at the centre of government's effort to promote universal sanitation throughout the period. The government's strategy was focused on strengthening the capabilities of local health officers, village leaders and volunteers through knowledge transfers from state government officials. Early in the programme (until the 1980s), the Department of Health committed mobile units of health workers from the centre to each of the provinces and districts to raise awareness, train health workers and village volunteers, and monitor progress.

Health officers were required to have an initial qualification in sanitation. In the 1960s, a certificate in sanitation from a Regional Public Health College (the Ministry of Public Health set up six across the country) was the minimum necessary diploma. Many health officers were later supported with scholarships

2 Limited data is available on sanitation expenditures, as records have not been kept for a programme that achieved its objectives 10 years ago.

3 This is based on estimations from interviewees who held senior positions in the Department of Health.

towards bachelor and master degrees from the Faculty of Public Health in Mahidol University. As capacity was being built at the local level and the requirement for education was raised, those mobile units were dismantled but training always continued at all levels of government.

Demand promotion

Health officers at the sub-district level were initially responsible for demand promotion. Health officers would benefit from technical support from health institutions at higher levels (Regional Sanitation Centres, Provincial Public Health Office, District Public Health Office). Mobile health education units educated villagers about the harmful effect of contamination from human excreta and positive health behaviours.

In the late 1970s, sanitation committees were formed and village volunteers were trained to take up this role. Volunteer members of the committee were nominated by sub-district health officials for their leadership abilities and would receive training before being entrusted with the responsibility of promoting demand (each volunteer was responsible for 10 households, which made follow-up activities manageable), training leaders of less successful villages, and managing the revolving funds set up by the government (see section 4.1.2).

Supply promotion

The Ministry of Public Health provided technical assistance to train community artisans in building and marketing low-cost technologies (eg pour-flush latrines and rainwater harvesting cisterns) and entered into partnership with private sector producers to make products more accessible.

Administrative support

Administrative costs constituted a major part of Government expenditures in sanitation and include salaries and per diem for health officers, as well as merit-based rewards with opportunities for further studies (such as scholarships for post-graduate studies) and study tours abroad to increase experience and knowledge.

Monitoring and evaluation

Monitoring and evaluation activities were carried out rigorously from village to national levels. In 1970, a follow-up and reporting system was established to report on the programme achievements from village to national level. Progress reports were submitted monthly for scrutiny assessment. Initially, state monitoring officials were designated to supervise monitoring activities in all the provinces. This responsibility was then devolved locally after monitoring capacity had been built at the local level.

National and province-level meetings, which involved all actors (including provincial, district and sub-district health officers as well as volunteers) were organised regularly to gauge progress, and identify barriers and solutions.

4.1.2 Financing for software activities

Data on public sanitation financing was only available for the 6th and 7th development plans, ie between 1987 and 1996. However, figures on software financing are likely to be under-estimated for the following reasons:

- The cost of initial training in a two to three year university curriculum could not be accounted for and yet represented a major aspect of capacity building activities and a key factor underpinning Thailand's sanitation strategy.
- Training health workers at lower levels of government was the responsibility of senior health officers but it was not possible to evaluate the time spent on this function.
- Most of the demand promotion and follow-up activities rested with volunteers, whose time is difficult to estimate.
- In many provinces, local administration organisations also contributed to finance sanitation promotion activities on top of the budget allocated by the Department of Health, but these participations varied

from province to province depending on local and provincial policy agendas and were not recorded at the national level. In addition, some provinces were able to raise funds directly from local NGOs or international organisations to complement limited government funding.

The sanitation division budget for software activities under the 6th and 7th plans is shown in Table 4.1 as a percentage of the division’s total budget.

Table 4.1: Software budget of sanitation division of Department of Health

Software activities	6 th plan (1987-1991)		7 th plan (1992-1996)	
	Amount (million THB)	% of total sanitation division budget	Amount (million THB)	% of total sanitation division budget
Salaries and per diem	273.9	35.1%	578.3	18.3%
Meetings and seminars	7.9	1.0%	8.2	0.3%
Training of public health officers	2.7	0.3%	19.4	0.6%
Training of local leaders and volunteers	91.8	11.8%	14.7	0.5%
Communication	7.5	1.0%	31.3	1.0%
Management and information system	N/A	N/A	3.1	0.1%
Monitoring and evaluation	N/A	N/A	29.9	0.9%
Research	15.0	1.9%	5.0	0.2%
Total	398.8	51.2%	689.8	21.8%

Source: Calculations based on general budget, Ministry of Public Health

Salaries and per diem constituted an important part of the sanitation division’s budget. Government health officers were motivated to improve sanitation coverage and use of latrines with a merit-based system driving salaries and promotions, as well as the provision of a comfortable per diem and vehicles for fieldwork.

According to budget information from the Department of Health, software activities in the total sanitation division budget decreased in percentage terms from one period to the next, with a respective contribution of 51.2% and 21.8%. Yet, in absolute terms, the budget for software activities was multiplied by 1.7 from the 6th to the 7th Plan. Most of these funds were actually used to pay salaries and per diem allowances, which indicates a sharp increase in staffing and activities on the ground (as well as increases in salaries). The proportion of software support in the Department of Health’s budget diminished as capacity was being built and spending shifted towards increased hardware support, including the revolving funds (which included some level of hardware subsidies, for the first latrines to be built via the revolving fund and in the case of grants for the destitute).

4.2 Latrine construction

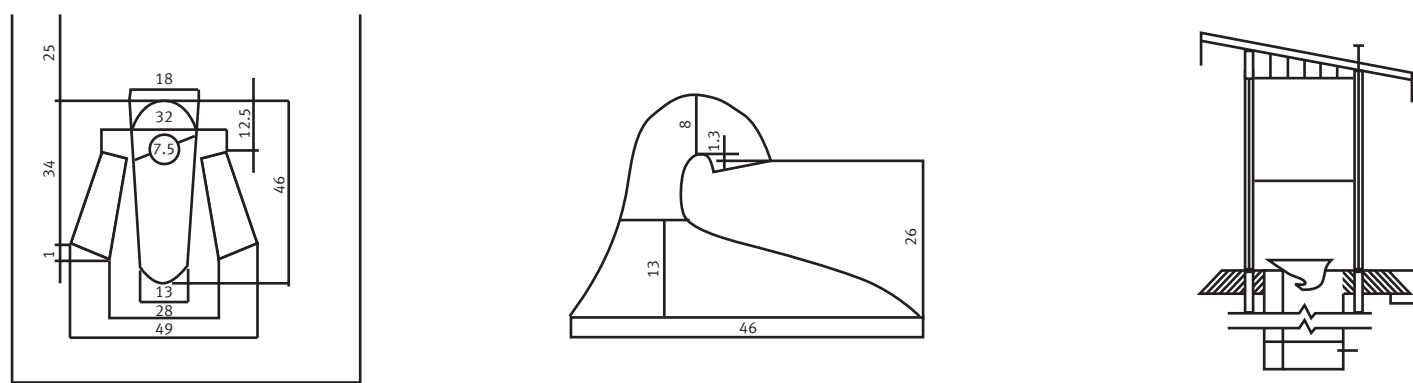
4.2.1 Coverage and costs

Sanitation coverage increased dramatically over the 40-year period, with an average annual growth in the coverage rate of 28%, although this growth rate varied sharply (with particularly rapid growth at the start of the period when the country was starting from a very low base).

The Department of Health chose to promote one sanitation technology that seemed to fit well with Thai culture and practices: the water seal latrines (see Figure 4.1). It consisted of a bowl made of concrete (or other durable material) attached to a concrete slab. The lower part of the bowl was designed so that water would remain in the curved part at all times, forming a water seal. The slab was located directly above the pit. A superstructure was used for privacy.

By the end of the 1970s, the design was further developed to separate the disposal pit into two tanks. The additional tank was used as a seepage tank, which received the overflow from the first tank and stored it to prevent seepage into the ground, providing partial treatment, like a septic tank. This method prolonged the period between pit emptying from an average of one to two years up to two to three years.

Figure 4.1: Design of a water-seal latrine



Source: Department of Health, Thailand

The cost of a superstructure depended on the availability of local material and the wishes of households. The cost of the substructure (bowl and pan) has evolved drastically over the study period and depended on the availability of local materials (if casing was bought or reproduced locally from moulds) and the preferences of households (for ceramic pan or other types). Cost estimates are given in Table 4.2⁴.

Table 4.2: Cost estimates of latrines between 1960 and 2000 (THB)

	1960s	1970s	1980s	1990s
Type of latrine	Cement bowl, bamboo casing and superstructure with leaves	Addition of a seepage tank	'American Standard'* ceramic pan	Addition of an improved superstructure
Estimated cost (THB)	300	1,000	2,500	5,000
Per household income in rural areas (THB/month)	728	2,109	5,096	9,328

* The Thai Government arranged a partnership with American Standard that has been instrumental for making aspirational and affordable ceramic pans accessible. This partnership could not be explored further in the context of this study.

Source: UNESCAP, EADN, Ministry of Health, National Statistical office

4 These costs have been estimated through interviews with key experts who have worked on sanitation over four decades.

Although the cost of building a latrine has increased over the years, it has continuously represented between 0.4 and 0.6 times the average monthly per household income in rural areas, making them largely affordable.

However, this is an average ratio and the burden for poor households, in real terms, may have been much higher. Box 4.1 details the cost burden of latrines in Prachinburi province, at the time of the big push towards universal coverage, which started in 1992-1993.

Box 4.1: The construction of latrines in Prachinburi province

Research conducted by the Department of Health in Prachinburi province in 1992-93 showed that the cost of latrine construction varied a lot among villagers. These results were based on a sampling of 260 households in three villages. Prachinburi province started the ‘100% latrine coverage campaign’ in December 1992. The province is divided into 13 districts, 123 tambon and 1,192 villages. At the start of the study period, there were 137,205 households with 77% latrine coverage. The average income of the population in the province was THB 27,716 per household per year.

Through various strategies under the leadership of the Governor, the province reached universal sanitation by November 1993. According to the Provincial Chief Health Officer, the province spent THB 8,342,968 on the successful campaign. This amount represented 30% of the total estimated expenditures needed to reach 100% coverage, and came from various public sources, such as the Provincial Public Health Office, the budget allocated by the Member of Parliament representing this province, and the Village Development Fund⁵. Besides, households and local NGOs contributed to the financing effort: the Prachinburi Population Foundation contributed THB 2,879,001 and households contributed the rest⁶.

Households could either rely on savings to build latrines (almost two thirds of the population did so) or on Government support, largely by benefiting from discounts on the cost of material. 63% of households actually financed their latrines with their own resources and the second main source of funding was through access to free material. The different sources of finance are shown on Table 4.3.

Table 4.3: Sources of finance for building latrines, Prachinburi Province, 1992-1993

Sources of finance	%
Own source of finance	63.1%
Free material from the government	1.5%
Revolving fund (money)	0.4%
Revolving fund (material)	23.1%
Other	11.9%
Total	100.0%

5 The Village Development Funds were launched in 1984 to encourage NGOs to participate into rural development (community financing).

6 This includes transportation of material, cost of labour as well as financial contribution.

Box 4.1: The construction of latrines in Prachinburi province (continued)

The cost of latrines varied a lot across villages, as shown in Table 4.4.

Table 4.4: Cost of latrines across villages in Prachinburi Province

Cost of a latrine	%
Less than 1,000 THB	20.4
1,001-2,000 THB	24.2
2,001-3,000 THB	23.1
3,001-4,000 THB	15.4
4,001-5,000 THB	10.0
More than 5,000 THB	6.9

The % column refers to the part of the population paying for latrines at various cost ranges.

Source: Department of Health

Emptying costs are not evaluated in detail here as households emptied full latrines themselves at no external cost and would dispose of the sludge in neighbouring fields. Under the 5th Plan, a model water-seal latrine was promoted to encourage people to use the sludge as fertilizer. However, there is no reuse tradition in Thailand and this model of latrines has never been widely used.

4.2.2 Hardware financing

Hardware subsidies

Sanitation hardware support was initially (between the early 1960s and 1978) given to households through direct government subsidies, on the assumption that recipient households would then serve as models to the rest of the community. It became evident, however, that the free latrines were neither used nor maintained. From 1978, the Ministry of Public Health rapidly switched to a more demand-driven approach.

Revolving funds

In 1980, a revolving fund was supposed to be created in each village so that households would finance their own sanitation improvements, helping ensure user commitment with a view to extending limited resources.

The government provided support and advice to establish the fund, which was administered by a sanitation committee including health officers in the sub-district, village leaders and volunteers. Loans were provided to households for building latrines and tanks to store rainwater (as per the broad definition of sanitation by the Ministry of Public Health (MoPH), which includes water supply and sanitation). Rules for running the revolving funds, such as interest rates, size of loans and reimbursement policy, were set by the village fund committee without government supervision. Exceptions could be made for the poorest households who would often provide labour instead of reimbursement. The range of possibilities for lending out the fund's money therefore ranged between grants, zero-interest loans and regular loans.

The initial capital outlay from the government contributed to finance a demonstration budget to build 10 individual latrines in villages of 150 to 200 households. This amount included the cost of all necessary materials, such as squatting slabs, transporting materials and construction by local artisans. At a later stage, and as a complementary measure to the revolving funds, government funds were used to buy

moulds in provincial production centres that would be used by local masons to produce the latrines locally. The government also contributed towards the cost of material by buying bulk supplies of materials and selling parts to households at a discounted price.

Community members also had the opportunity to contribute to the fund by buying shares, ie by investing money upfront in the hope of a return on the investment.

The practical implementation of revolving funds varied substantially from village to village. Box 4.2 gives an example of how this worked in practice in Ayutthaya province.

Box 4.2: How a revolving fund operated in Ban-Mae (Ayutthaya Province)

In Ban-Mae sub-district of Ayutthaya province, which consists of five villages, a revolving fund was set up in 1980. At the beginning of the period, only 40 of the 300 households had a latrine. The cost was estimated at THB 200 for a substructure, while the superstructure was made of locally available materials, such as bamboo. The provincial administration contributed towards the establishment of the fund with an interest-free loan of THB 5,000.

Two thirds of the households borrowed from the fund to build their latrine, while the rest used their own funds. No interest was charged and operating expenses were not accounted for as the fund was run mostly by volunteers. They could borrow to cover all of the initial capital outlay. Reimbursement rates approximated 80% within a three month-period. The fund was revolved five times and allowed to build 230 latrines, bringing the coverage up to 90% in the province after six years. At the end of the period, only THB 2,500 was left. The sub-district health officer contributed the remaining amount from the sub-district budget to reimburse the full initial amount to the provincial administration.

Besides anecdotal evidence, such as the results in Ban-Mae, it is difficult to assess the impact of revolving funds on sanitation coverage for two main reasons. Firstly they were part of a broader set of policies that have constantly been adapted to best support the construction of latrines. Secondly, decisions were made at the local level with no control from the Thai Government, which means that we do not really know how much funding was dedicated to those funds and how often they revolved.

By and large, it is considered that revolving funds were successful to jump start latrine construction, particularly when increases in coverage rates achieved through software policies alone had started to slow down in the late 1970s. But as the government's efforts were intensified under the '100% Latrine Coverage Campaign' and as economic growth facilitated investments by households, the rationale for such a mechanism faded away.

A mid-term review by the Sanitation Division of revolving funds under the 5th plan (1982-1986) in seven provinces under the Regional Centre number six (Pitsanulake) evaluated their approach and success. The evaluation was carried out in 232 villages. Results showed that all villages benefited from a demonstration budget from the government, and that 15% also benefited from shares bought by more than half of the households. For 55% of the funds, no reimbursement was required, ie revolving funds actually functioned like government subsidies. Less than 20% of the initial capital in all funds had actually revolved. 80% of the funds were managed according to the rules set by the sanitation committee and over 50% had integrated yearly auditing mechanisms. Low reimbursement rates were thus not linked to poor performance but rather to the rules defined locally, which in some cases did not require reimbursement.

The part of the Sanitation Division's budget devoted to hardware (referred to as a demonstration budget, ie seed financing for the revolving funds) has increased over time. The government made a conscious choice of emphasising sanitation promotion first, and once the demand was established, devoted its attention and budget to latrine construction. According to interviews with Ministry of Health officials, this switch seems to have happened between the 6th and the 7th plan. Under the 6th plan (1987-1991), budget for latrine construction accounted for THB 50 million over a total budget for sanitation (including

environmental sanitation and safe drinking water) of THB 780 million, ie 6.4% (with salaries and per diems contributing for more than 60%).

Under the 7th Plan, which started in 1992, the demonstration budget was replaced by a ‘Sanitation Activity Package’ for each village, which mostly included hardware investments over which village sanitation committees had full discretion for spending (see Box 4.3 for detail). This accounted for THB 2 billion over five years, ie 63% of the total budget of the department. By that date, coverage had already reached 80%, and this switch to hardware subsidies is likely to have been driven by the will to get to the ‘harder-to-reach’, once there was also more fiscal space to do so.

Box 4.3. The Sanitation Activity Package

The ‘Sanitation Activity Package’ consisted of seven activities, including water supply storage, excreta disposal, solid waste management, waste water treatment, food sanitation, vector control and household sanitation. The concept behind the Sanitation Activity Package is that every village, and every household in this village, has different sanitation problems.

For example, a household might already have a latrine but still lack water supply. The government allocated an overall budget to targeted villages to carry out sanitation activities. Village committees would then decide which activities to carry out from the package. This response to sanitation problems aimed at addressing the problems which concerned villagers the most, as well as decentralising the administration of sanitation activities.

5 Evaluating public finance for sanitation in Thailand

This section seeks to evaluate the effectiveness of public financing for sanitation in Thailand based on a set of criteria, including comprehensiveness, equity and leveraging.

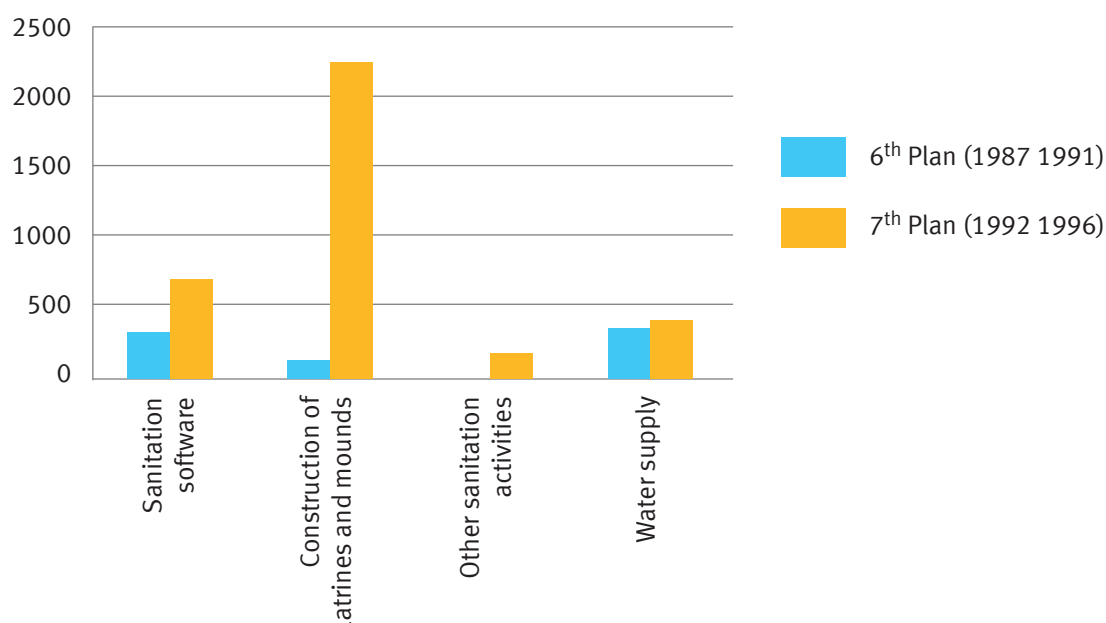
5.1 Criteria 1 – Comprehensiveness

The key question here is whether public financing flowed to the right segments and activities of the sanitation value chain so that each segment functioned effectively and in a sustainable manner.

Financing has been focused on promoting access to sanitation in an integrated manner with water supply.

Figure 5.1 shows the budget allocation of the Sanitation Division for the 6th and 7th National Economic and Social Development Plan. This shows that even though the Sanitation Division was responsible for both water and sanitation, adequate priority was awarded to sanitation within their activities during the 6th Plan. In the 7th Plan, heavy emphasis was placed on hardware sanitation financing, via the construction of latrines and moulds, which therefore overtook the water supply budget.

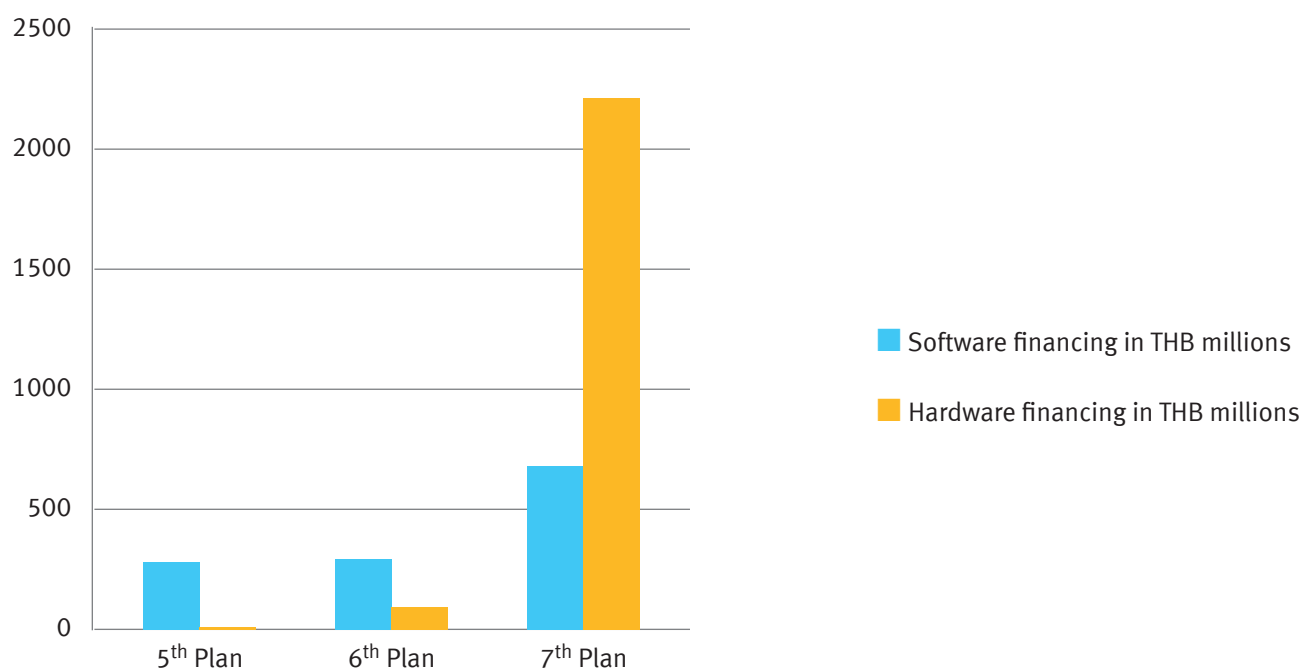
Figure 5.1: Budget allocation of the Sanitation Division, allocation of total budget for the 6th and 7th Plans (THB millions)



Whereas the original emphasis was on sanitation software, public financing for hardware was later increased during the 7th National Plan. Initial efforts on sanitation particularly emphasised the importance of software activities, such as training, regular seminars and meetings and field visits of provincial and local health officers. Software activities accounted respectively for 40% and 20% of the Department of Health’s total budget in the two different plans. During the 7th Plan, the government decided to channel additional funds to the villages through a ‘Sanitation Activity Package’⁷, over which village sanitation committees had full discretion for spending. Sanitation hardware therefore jumped from 14% to 64% of the total budget, while water supply activities (including financing water jars and water quality monitoring) dropped from 43% to 11% of the total budget. Whereas sanitation software financing was about 33 times higher than hardware financing in the 5th plan (1982-1987), it only accounted for about a third of hardware financing in the 7th plan (1992-1996), as shown on Figure 5.2. This means that the balance between software and hardware had clearly shifted between the 5th and the 7th plan.

7 ‘Sanitation Activity Packages’ may include software funds, but no estimation of allocation can be made as the allocation decision is made locally. We decided to allocate all funds to hardware support, as the 7th plan corresponds to the development of revolving funds mechanism, which corresponded to a real push in hardware financing.

Figure 5.2: Amounts of software vs hardware financing in the 5th, 6th and 7th National Economic and Development Plan



Source: Budget of the Department of Health under the 5th, 6th, and 7th Plan, Ministry of Public Health

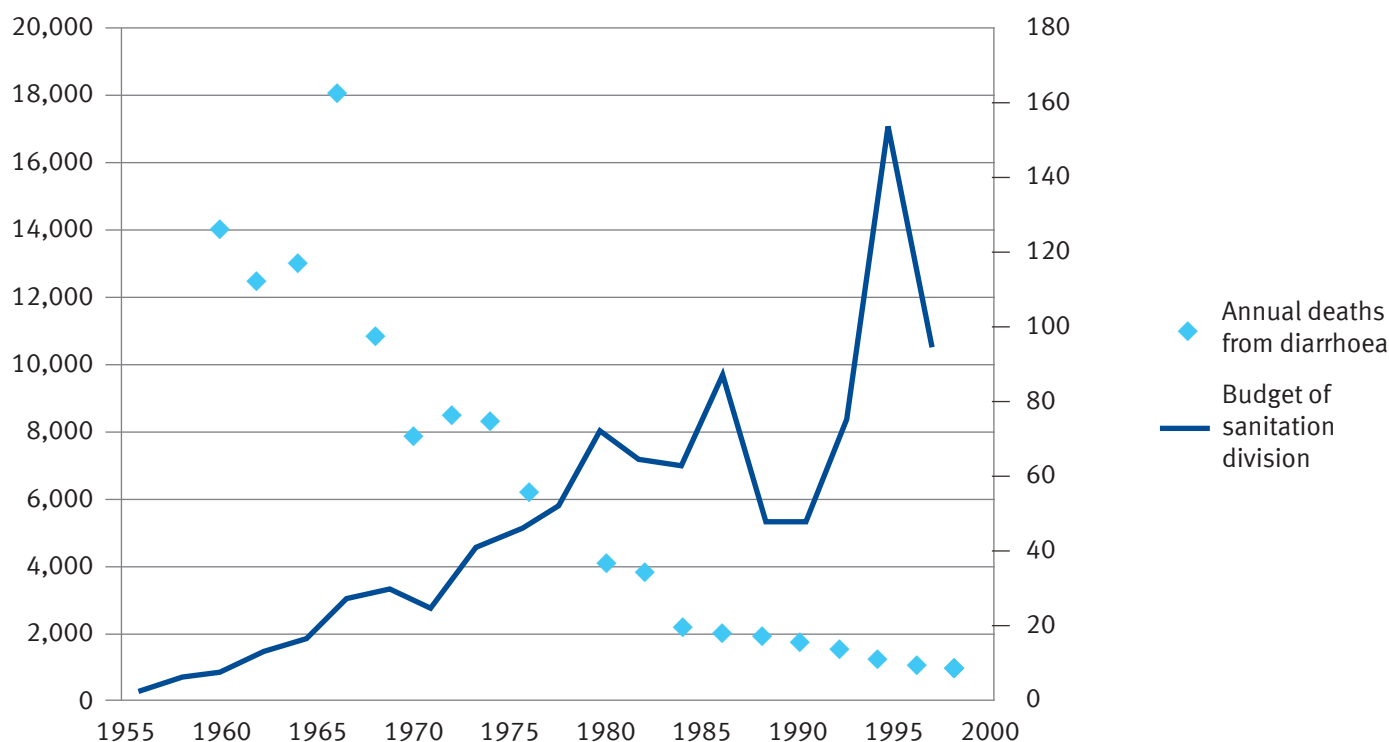
Some sector experts argue that such emphasis on hardware financing should have come earlier in the programme, as targets have systematically been underachieved. Between 1960 and 1981, target coverage was 50% in rural areas, whereas actual coverage was only 41.3%. Under the 5th Plan, coverage was set at 70% while actual coverage was 51.2%. Some sector experts argue that universal sanitation could have been achieved earlier if adequate funding had been directed to latrine construction. However, the policy that was followed appeared to have entailed achieving substantial coverage increases through software support in the first instance, then followed by targeted hardware support for the hardest to reach. This strategy appears to have worked over time, as it helped with achieving 100% coverage rate.

Public funds for hardware support have only been dedicated to the construction of latrines, overlooking the rest of the value chain: emptying, treatment and reuse. For on-site sanitation in rural areas, treatment and reuse did not exist (as mentioned earlier, the government failed to convince the population to use sludge as a fertilizer)⁸. Latrines were most of the time emptied in a nearby dump by the households themselves.

Public investments in sanitation have had high and sustainable health benefits, as the annual death rate from diarrhoea is conversely proportional to the budget of the sanitation division (Figure 5.3). By contrast, impact on reducing morbidity has been much slower. Based on these observations, the Thai Government has since switched its attention to improving hygiene and sanitation in public places and schools. As more and more people are participating in the labour force in Thailand, they are no longer exclusively reliant on domestic sanitation facilities.

8 In recent years, treatment and reuse were brought back on to the Thai Government’s agenda, who then imposed stricter regulations on emptying septic tanks. The government is investing in treatment plants and a market of private sewage management is rapidly developing.

Figure 5.3: Budget of sanitation division (million THB) and annual deaths from diarrhoea



Source: Budget of sanitation division (million THB) and annual deaths from diarrhoea: 6th and 7th national sanitation Plans

5.2 Criteria 2 – Equity

This section seeks to evaluate whether public funds were adequately targeted to reach the poor. This criterion is relatively difficult to assess due to the lack of hard data, particularly by wealth quintile.

In the early stages, the Thai Government did not adopt a deliberately pro-poor approach. On the contrary, the Department of Health focused its initial actions on ‘core villages’ that had been identified to have a strong implementation potential (eg because of the presence of well-trained local leaders, the mobilisation of additional financial resources or particularly active village committees). For the implementation of the revolving fund system, borrowers with a high repayment potential were targeted first to receive funds from the demonstration budget.

The rationale behind this course of action was that the solidarity mechanism, well-anchored in Thai culture, would play an important role in diffusing the knowledge and expand progress. Sanitation committees of core villages have participated in exchange programmes with ‘extended villages’ to share the process that led them to success (ie universal sanitation) and the technical knowledge to build latrines and run a revolving fund.

Poor people also had access to such funds: the sanitation committee managing the fund had the ability to decide upon their attitude towards the poorest. The latter could either benefit from de facto grants (ie not reimburse the loan), or from lower interest rates, or could contribute towards its reimbursement through labour for richer villagers. Because the decision was taken at the local level without being reported, there is no record about how this mechanism functioned in practice (for example, in Ban-Mae district as described in Box 4.2, no interest rate was charged).

During the 7th plan (starting in 1992), as coverage had already hit 80%, the government decided to increase hardware subsidies through the provision of a ‘Sanitation Activity Package’, which villages were free to use as they wanted to reach the most ‘hard to reach’ segments of the population. This proved instrumental in reaching close to 100% coverage by 1999.

5.3 Criteria 3 – Leveraging

This criterion examines whether public funds were used in a way that effectively leveraged other forms of finance, and in particular household financing. Although there is only limited information available to estimate the leverage ratio throughout the period, the fact that the government achieved universal sanitation in rural areas over the course of 40 years whilst spending less than 0.01%⁹ of the national budget on sanitation shows that leveraging of public resources has been substantial. Yet, available information is helpful to draw partial conclusion.

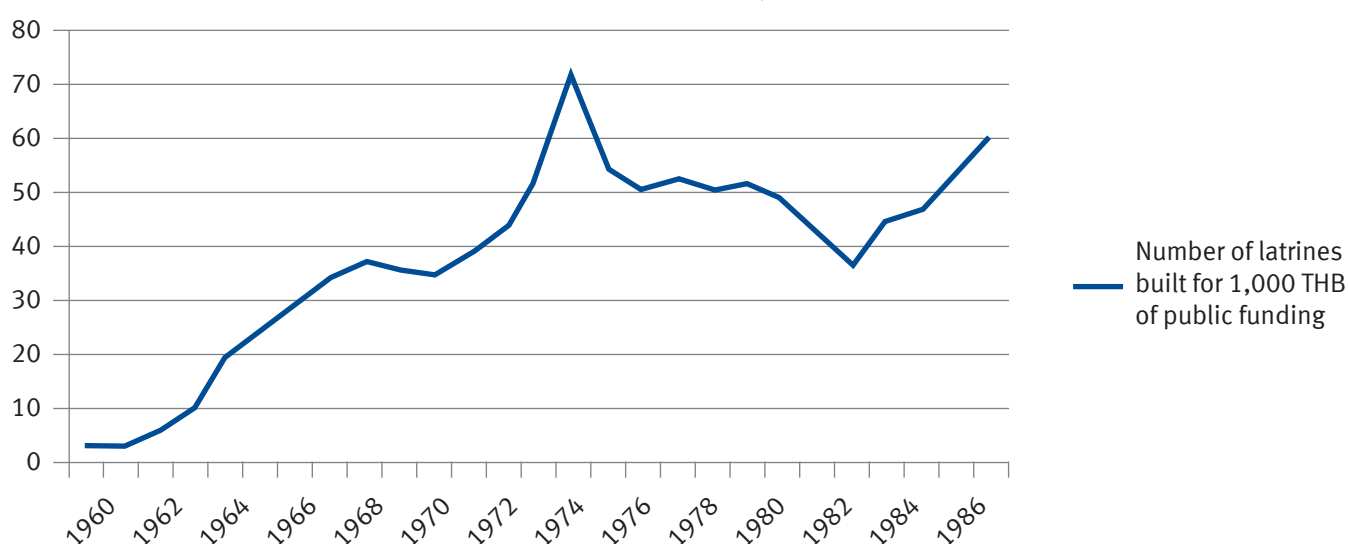
Leverage ratio

The leverage ratio, which is the ratio of private funds over public funds, allows an assessment to be made of whether public funds are used in a way that effectively leverages other forms of finance, in particular household finance. Due to the lack of data, the leverage ratio can only be calculated for a specific example. For instance, the seed capital invested by the government in the revolving funds financed, on average, 10 latrines in a village of 250 households, ie latrines for 4% of the number of households. Considering that only about 20% of the initial amount was revolved, this means that a very small percentage of latrines were financed through public funding¹⁰. The example of Ayutthaya Province is even more telling. The government contributed an initial capital outlay to the revolving fund of THB 5,000, but half of this amount was left at the end of the period. Given the average construction cost, the government could have theoretically built 25 latrines with public funds only. Yet 230 latrines were built, for an average expenditure of THB 46,000. The leverage ratio was therefore estimated at 17.4, ie each baht of public funds leveraged THB 17.4 of private funds.

Value for money ratio

In order to assess leverage, it is also interesting to look at the efficiency of public financing, ie how many latrines have been constructed for THB 1,000 spent by the government (Figure 5.4). The main issue with this type of estimate is that these figures are in nominal terms (ie current prices) when inflation over the period has been significant. However, this graph shows that the value for money rose to a peak in 1974. Additional investments in hardware financing in later years (as well as inflation) may explain the dip in the number of latrines per 1,000 THB of public funds.

Figure 5.4: Number of latrines built for THB 1,000 of public funding



Source: Data from the Department of Health, 'Four Decades of Latrine Development'.

9 This figure has been provided for the 1990-1999 decade (see Narongsakdi Aungkasuvapala, EASAN 2007) but seems to be no different for previous decades. It includes only spending from the Department of Health at the national level and does not include parallel spending at lower levels of government, by NGOs or by international donors. It should therefore be treated with caution and is clearly an under-estimate of the total amount of public funds spent on sanitation.

10 This estimation only takes public funding from the Department of Health into consideration.

6 Conclusions

In Thailand, the achievement of near universal sanitation was the result of four decades of continuous efforts that included strong political commitment and good leadership at all levels of government, effective capacity building and education activities, the establishment of revolving funds at community level, and active community participation in behaviour change and knowledge transfer. The driving mechanisms behind such success are evaluated below, so as to be in a position to extract lessons for other countries.

Overall sanitation policy: key findings

- **Strong political will and commitment to the sanitation sector were key factors that enabled Thailand to reach full coverage within 40 years.** Thailand's success story has relied on strong political will, making sanitation a national policy as early as 1961 by integrating the sanitation programme into the First National Economic and Social Development Plan.
- **A clear institutional framework has enabled consistency and clear leadership for policy implementation and delivery capacity.** Thailand has implemented its sanitation programme through a single dedicated operational system within the Ministry of Public Health: the Department of Health and its decentralised satellites have been the leading administration on sanitation since the beginning, although they have not hesitated to tailor their approach over the years, to adapt to new circumstances (such as rising incomes and sanitation coverage in rural areas) and incorporate new ideas (such as the revolving fund and partnerships with the private sector). The sanitation issue benefited from the fact that public health officers could climb the professional ladder (in terms of remuneration and position) based on their performance in sanitation. In addition, the monitoring and evaluation system was particularly strong, in a decentralised but highly hierarchical system, which allowed for retrospective data analysis.

A bottom-up monthly reporting system was built at all levels of government. Health Officers were thus instrumental at each level of the government in the implementation of the sanitation policies, from translating policy into action plans (setting up sanitation committees, revolving funds, etc) to training health officers at lower levels of government and reporting thoroughly on progress.

- **Additional public policy tools, such as enforcement, were used in conjunction with demand promotion and appear to have been effective.** For example, in 1989, the Ministry of Interior required all houses to have a sanitary toilet before they could be registered. This supported an increase in coverage at no additional cost to the general budget.

Sanitation financing policy: key findings

- **Substantial financing was initially allocated to software spending** (for capacity-building (for health officers, trainers, villagers) as well as research and development and supply and demand promotion. As discussed, the value of such software spending has most likely been under-estimated as it was not possible to track all categories of software spending and data on earlier periods has not been kept. This emphasis on software appears to have been one of the key success factors for increasing coverage, as it allowed the Thai Government to successfully delegate to local governments the implementation and follow-up of sanitation programmes. As capacity was built, the need for software financing went down. For example, mobile units of central health officers supporting district health officers were dismantled as capacity was being built at village level.
- **The sanitation financing strategy then shifted to provide additional funds for hardware, although the emphasis on software was maintained throughout.** A shift towards additional hardware financing may have partly been based on the realisation that coverage targets were not being met fast enough, as coverage increases started to plateau in the 1980s. The revolving funds were used to provide seed financing to villages, which were to be spent on hardware for building demonstration latrines. This enabled leveraging of private funds, with leverage ratios as high as 17 in those cases where we could

obtain data¹¹. In practice, these revolving funds proved to be a flexible instrument, as each village was able to decide on the rules for using the funds and on targeting methods. As a result, the funds were not integrally revolved: some of the funds were provided as grants to beneficiaries, whereas others were provided as loans. On the other hand, the possibility to tailor the revolving funds mechanism to local needs means that it is not possible to draw overall lessons as to how they operated and whether or not they have been successful.

- **The initial strategy for allocating hardware funds was deliberately not ‘pro-poor’ but to reach the 100% coverage target, hardware subsidies began to be allocated in the 5th plan (1980) and reached over 60% of the sanitation budget in the 7th plan.** The initial strategy chosen by the Government was to make easy gains, betting on the ‘demonstration effect’ or incentive to follow the leaders (applied within a village but also from one village to the next). But the noticeable increase in hardware subsidies during 1992-1996 indicates a policy shift with direct subsidies allocated to lift affordability constraints for poor households.

Remaining challenges

- **Once the coverage targets were reached, the government became much less involved in the rural sanitation sector,** as it was assumed that it would take care of itself. Although increases in rural sanitation coverage have contributed to a massive decrease in mortality due to diarrhoea, the impact on morbidity has been much less conclusive, although public health was a key driver behind sanitation policies in Thailand. This may be partly due to the fact that there were no provisions for dealing with the accumulated waste in latrines, which rural dwellers commonly spread on nearby fields, although a wide range of factors can also account for high levels of morbidity from diarrhoea.
- In the last few years, the Thai Government has taken measures to tackle waste treatment and reuse through stricter regulation imposed on emptying septic tanks emptying and investing in treatment plants.

11 This is comparable to the leverage ratios observed in Vietnam in the Sanitation Revolving Fund programme in the Three Cities project, as reviewed in Trémolet et al (2010). This leverage ratio was by far the highest in the set of country experiences analysed in the Water and Sanitation Programme study, largely due to the fact that public funds were repeatedly revolved with minimum leakage in the revolving fund mechanism.

Annex A: Background documents

Websites:

- Adis Israngkura (2003) 'Income inequality and university financing in Thailand, final report to be submitted to the East Asian Development Network (EADN)' as quoted in Medhi Krongkaew and Ragayah Haji Mat Zin (2007) *Income Distribution and Sustainable Economic Development in East Asia: A Comparative Analysis* www.networkideas.org/working/mar2007/02_2007.pdf
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- Luong, TV, Chanacharnmongkol O and Thatsanatheb T (2000) *Universal sanitation – Thailand experiences*.
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- J Graham (2009) *Scaling-up sanitation: the case of rural Thailand*. USAID, Washington DC, USA
- The 1960-2000 *Population and housing census*, National Statistical Office, Office of the Prime Minister http://web.nso.go.th/pop2000/prelim_e.htm

Supporting government documents

- Sanitation activities in the 6th Public Health Development Plan, National Economic and Social Development Plan, 1987-1991.
- Sanitation activities in the 7th Public Health Development Plan, National Economic and Social Development Plan, 1992-1996.

Annex B: List of contacts

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