



**CONSERVATION OF HERITAGE HEALTHCARE ARCHITECTURE;
A CASE STUDY AT SIRIRAJ HOSPITAL, BANGKOK THAILAND**

By

Nantawat Sitdhiraksa
มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์

**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree
DOCTOR OF PHILOSOPHY
Program of Architectural Heritage Management and Tourism
(International Program)
Graduate School
SILPAKORN UNIVERSITY
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The Graduate School, Silpakorn University has approved and accredited the Thesis title of “Conservation of Heritage Healthcare Architecture; A Case Study at Siriraj Hospital, Bangkok Thailand” submitted by Mr.Nantawat Sitdhiraksa as a partial fulfillment of the requirements for the degree of Doctor of Philosophy in Architectural Heritage Management and Tourism

.....
(Assistant Professor Panjai Tantatsanawong,Ph.D.)
Dean of Graduate School
...../...../.....

The Thesis Advisor

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์

Dr. Donald Ellsmore

The Thesis Examination Committee

..... Chairman
(Professor Dr. Trungjai Buranasomphob)
...../...../.....

..... Member
(Assistant Professor Pibul Jinawath, Ph.D.)
...../...../.....

..... Member
(Dr.Donald Ellsmore)
...../...../.....

50056970 : MAJOR : ARCHITECTURAL HERITAGE MANAGEMENT AND TOURISM

KEY WORD : CONSERVATION HERITAGE HEALTHCARE HOSPITAL SIRIRAJ

NANTAWAT SITDHIRAKSA : CONSERVATION OF HERITAGE HEALTHCARE ARCHITECTURE; A CASE STUDY AT SIRIRAJ HOSPITAL, BANGKOK THAILAND. THESIS

ADVISOR : DONALD ELLSMORE, Ph.D.. 264 pp.

This study is a study of healthcare heritage conservation in Thailand by using Siriraj Hospital as model for proposing for conservation plan.

Healthcare architecture has a long history. As a part of human culture, healthcare architecture is on a dynamic development as a result of multiple factors, for example, the changes in social and healing culture, medical knowledge, building technology, scientific achievement, pattern of healthcare utilization, and government policy. Continuous changes of health architectures have been evidenced from ancient healing culture, to the church-run facility in the Medieval, to the state-run hospital in the Renaissance, to the evidence-base data collection in the Nightingale era, to the mega-hospital in period of science and technology, and might be to the more informative, residential, decentralized oriented healthcare.

A case study of Siriraj Hospital as a healthcare heritage was done by using the Hoi An Protocol for best conservation practice in Asia, section on monuments, buildings, and structures, as a guide to heritage hospital conservation. It was found that the significances, values, and authenticity of Siriraj Hospital were both in the aspects tangible and intangible heritage of functional value, educational value, historical value, social value, aesthetic value, and uniqueness value. Heritage conservation plan of Siriraj Hospital was purposed based on the significances, values and authenticity study.

Program of Architectural Heritage Management and Tourism Graduate School, Silpakorn University Academic Year 2011.

Student's signature

Thesis Advisor's signature

Acknowledgments

I would like to express my gratitude and appreciation to my very kind and supportive advisor, Dr. Donald Ellsmore. He is always my resources of encouragement and inspiration. Without his support and guidance, my dissertation would not be completed.

I am grateful to my mentors at work, Professor Somporn Bussaratid, MD and Assistant Professor Panom Ketuman, MD for their kindly continuous mentoring and encouraging in my work, and in my life. I am grateful to Professor Sanjai Sangvichien, MD for his help and his very kind advices.

I would like to thank Dr. Nattha Saisaveoy, Namon Phongsakornpaphas, Prapapan Pompothong, Ilada Subsin, Athip Sangrungreuang, and Nakaraj Pluetrattanabha for their support and encouragement. I would like to thank my research assistances: Lakkhana Thongchot; Phutharet Phongbupha; Naratip Sanguanpanich; and Julaluck Wankeaw for their help and understanding. Without their help and support, my dissertation would not be completed.

In addition, I am grateful to all the lecturers, oversea professors and staff of the International Program in Architectural Heritage Management and Tourism for their devoted time and invaluable knowledge. I would like to thank all of my friends who help and encourage me through the hardship of study and my work. Last but not least, I am very grateful to my parents, sister, and brothers who always give me love and support.

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Chapter 1

Introduction

Study site:

Siriraj Hospital

Date of construction: 1888

General description: General Hospital, Medical School

Location: 2 Prannok Road, Bangkoknoi, Bangkok 10700 Thailand

Owner: Mahidol University

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Figure 1: Location of Siriraj Hospital from the Google Maps
(Source: Image from Google Maps, April 3, 2012 ("Google Maps," 2012))

1. Siriraj Hospital (โรงพยาบาลศิริราช)
2. Chaopraya River (แม่น้ำเจ้าพระยา)
3. Bangkoknoi Canal (คลองบางกอกน้อย)
4. Amarintaram temple (วัดอัมรินทรารามวรวิหาร)
5. Prapinklao Bridge (สะพานสมเด็จพระปิ่นเกล้า)
6. Thammasat University (มหาวิทยาลัยธรรมศาสตร์)
7. Mahathat Yuwaratransarit temple (วัดมหาธาตุยุวราชรังสฤษฎิ์)
8. Silapakorn University (มหาวิทยาลัยศิลปากร)
9. The Royal Field (สนามหลวง)
10. Arun-Amarin Road (ถนนอรุณอัมรินทร์)



Figure 2: Siriraj Hospital from the Google Maps

(Source: Image from Google Maps, April 3, 2012 ("Google Maps," 2012))

1. The Main Administrative Building
2. Siriraj Pier
3. The Old OPD Building
4. Rajapattayalai Auditorium
5. Asdang Building
6. Somdech Prasrinnagarindra Centennial Building
7. 72nd Anniversary Building
8. OPD Building
9. Chalermprakieat Building
10. Syamindra Building
11. 84th Anniversary Building
12. Srisawarindira Building
13. Adulyadejvikrom Building
14. Center of Medical Excellence

This thesis is a study of heritage conservation at one of the Asian metropolitan modern teaching hospitals, a case study of Siriraj Hospital, Bangkok Thailand. The study included a literature review on healthcare architecture history, medical history, and conservation practice philosophy, hospital history in Thailand and the history of Siriraj Hospital. The information was gathered to study the significances and values of healthcare heritage conservation by using Siriraj Hospital, a modern teaching hospital as a model for the study. A plan for conserving the principal heritages values of Siriraj Hospital, a heritage conservation plan for Siriraj Hospital was discussed and proposed.

1. Origin of the study

Siriraj Hospital has served as a modern general hospital and modern medical school for over 124 years. The hospital has undergone continuous expansion, development, construction, demolition, replacement, reconstruction, and adaptation in use of the buildings along with the progress of medical technology and medical teaching. Study and thorough investigation of the heritage conservation plan of Siriraj Hospital is necessary to consider along with hospital's strategies and plan and the rapid progress in healthcare culture as well as medical technology.

2. Significance of the problem

Rapid progress in medical technology and changes in healthcare culture have had significant effects on the pattern of health care utilization and healthcare architecture. Hospitals, as a part of changing healthcare system, inevitably have to change and adapt along with the changing society. Conservation of heritage values of the hospital has to be carefully studied in a multidimensional approach, for example, from the healthcare policy, advancement of medical science, as compromise to significances and values in heritage quality of the hospital. Hospitals have always been modified to provide the best medical services to their patients.

Siriraj Hospital is the oldest and the first modern general hospital and medical school in Thailand. The hospital was founded by King Rama V and has always been got a continuous support from the royal family. Siriraj Hospital is a symbol and a landmark of both Thai modern Medicine and traditional Medicine. Siriraj Hospital has always been recognized as a symbol and the leading medical institute in Thailand. The other inseparable identity of Siriraj Hospital is its role in Thai medical education. The father of the reigning King, who was given the title of "the father of Thai modern Medicine", had laid out the model for Thai medical education and service to general public. Siriraj Hospital has always been famous for giving the best medical care to the general public and the royal family and the King. Siriraj Hospital is a living healthcare specimen, it has been in service continuously for 124 years.

Chaopraya River and location of the hospital on its bank are unique history and value of Siriraj Hospital. The layout of the hospital related closely with the historical access to the hospital by the river. Most of the heritage buildings at the hospital face to Chaopraya River. Therefore, it is important for Siriraj Hospital to keep up with the most up to date medical science and at the same time be able to keep her heritage on the history of Thai modern medicine. Accordingly, this study concludes with the identification of conservation values and a plan to protect the heritage significances and values, based on careful assessment and documentation.

3. Goals and objectives

1. To study the factors associated with significances, and values of healthcare heritage conservation, a case study at Siriraj hospital, Bangkok Thailand.
2. To propose conservation guidelines according to Siriraj Hospital's authenticity.

4. Hypothesis

Conservation of the heritage values of Siriraj Hospital would be assured by being congruent with the hospital's management strategies and management plan, and based on a multi-dimensional interpretation of authenticity.

5. Scope of study

This dissertation was built around the study of conservation of heritage healthcare architecture, focusing on a case study at Siriraj Hospital. The scope of study includes:

1. History of medical evolution
2. History and trend of healthcare architecture design
3. Heritage protection, conservation practice
4. Health and welfare buildings heritage protection practice
5. History of evolution, changes, management strategies and management plans of Siriraj Hospital
6. Surveying on site

The study is limited to the investigation of the history and significance of Siriraj Hospital. The need for a conservation plan to serve the ongoing and future planning needs is explained but the dissertation does not provide a plan. It concludes by offering guidelines for use in the development of a plan to protect the heritage values and to incorporate heritage into the management planning for the place.

6. Research methodology

This dissertation was a descriptive research. Research methods included data collection by gathering the information and sources by surveying on site at Siriraj Hospital as a primary source and the secondary sources from the books, publications, maps, websites concerning medical evolution, healthcare architecture evolution, heritage conservation, and healthcare heritage conservation practices. Heritage conservation protocols were reviewed and studied. Values, significances and authenticity of Siriraj Hospital as a heritage were studied and discussed. The conservation plan for Siriraj Hospital as a healthcare heritage was proposed.

7. Process of study

The process of study included identifying topic, selecting and reviewing related literatures, collecting and reviewing valid and reliable historical and evolutionary data of the site was done. Related heritage conservation protocols were studied. Discussion of the heritage values and significance of the site from the review and data collection was done. Conservation planning was discussed. Guidelines were proposed, and the conclusion was reported.

8. Dissertation overview

Chapter 1: Introduction

Chapter 2: History of healthcare architecture design

Chapter 3: Review on heritage protection

Chapter 4: History of evolution and change at Siriraj Hospital

Chapter 5: Consideration of heritage significance of Siriraj Hospital

Chapter 6: Conservation planning and discussion

Chapter 7: Guidelines for change

Chapter 8: Conclusion

Chapter 2

History of Healthcare Architecture Design

Literature review

History of healthcare architecture design

In William Osler's lecture to medical students at Yale University in April 1919, "*MEDICINE arose from out of the primal sympathy of man with man, out of the desire to help those in sorrow, need and sickness*" (Osler, 1913). Hospital history is large and very complicated. Most of the writings on hospital history are very Christocentric and Eurocentric (Henderson, Horden, & Pastore, 2007). Some believe the earliest hospitals were in Mesopotamia, while other researchers believe they were at Buddhist monasteries in India and Sri Lanka. There are several for hospital history classifications.

In 1936 Henry Sigerist divided hospital history into three stages (Henderson, et al., 2007; Sigerist, 1936): 1) The institutional care of the sick arising in the medical facilities incidentally offered by poor houses, guest houses, and prisons; 2) The hospitals emerged as medical institutions for the indigent and dependent in the thirteen century; 3) The emergence of modern hospitals in the mid-nineteen century with the progress of medicine and surgery.

More recently, in 1999, Guenter Risse suggested hospitals as symbols of community, deliverers of social welfare, and mechanisms for coping with suffering, illness and death (Risse, 1999). He classified the hospitals history into: 1) House of mercy, refuge, and dying in late Christian antiquity, which provided "great spiritual solace but minimal physical comforts"; 2) House of segregation and confinement, in the later Middle Ages for the outbreak of leprosy, syphilis in the early 16th century, and plague which afflicted Rome in 1656–1657; 3) House of rehabilitation in the Renaissance; 4) House of care, in the eighteen century; 5) House of surgery, from the 1880s because of the inventions of the antiseptics, and being used on a significant scale by the middle classes; 6) House of science, in the early 20th century; and 7) House of high technology, in the late 20th century. Risse explored the ideology of each institution he surveys, as well as the staff, the architecture, the treatment administered, and the culture of dying. These themes and others were discussed against the backdrop of the "master text", the political and cultural history that situates each hospital in time and place. Risse described not merely the social history

of medicine but also the history of an entire culture. Current health care focuses primarily on individual physical rehabilitation in more fragmented and depersonalized environments. Risse also pointed out that hospitals face numerous pressures from consumerism in medicine, new managerial and financial imperatives, and growing complaints by patients about the lack of personal attention. *“If current trends continue,”* he predicted, *“more than a third of all existing American hospitals will either close or merge during the next decades”* (Risse, 1999).

Verderber S and Fine DJ, 2000, identified the six waves in history of health architecture through which hospital design has evolved (Verderber & Fine, 2000), they included:

1. The Ancient era: The healing practice of the ancient Egyptians, The Greeks, and Middle Eastern and Eastern culture.
2. The Medieval period: The Catholic Church arose as the most powerful provider of hospital care.
3. The Renaissance: The state-run asylums and hospitals gradually took place in healthcare. The stately palace hospitals adhered to the neoclassical architecture.
4. The Nightingale era: The rise of the modernist hospital-planning principles, through the work of Florence Nightingale. Nightingale emphasized function above form. The pavilion style advocated by Nightingale being adopted in response to concerns about the hospital environment and the need for fresh air and cleanliness. Her guidelines caused hospital reform, concerning aspects of the maximum allowable width and length of a ward, the size of the windows and their placement in relation to the bed, the overall ambience, the ventilation and heating system, and the use of specific material and colors.
5. The Minimalist Megahospital: The hospital grew more specialized, containing newly formed departmental grouping or zones. It grew up enormously in size and spatial complexity. The dramatic increase in land costs in urban centers, the advent of long-span structural system and sophisticated heating, ventilation, and air conditioning systems encouraged the abandonment of the Nightingale wards in favor of large block hospitals.
6. The Virtual Healthscape: Part of the reaction against the minimalist megahospital has been moving toward residentialist imagery and design principles for hospital and allied healthcare building types. The decentralization trend, the devolving services to outpatient clinics and

primary healthcare providers, the cheapness of computer-run technology and information technology could nullify the scale and concentration of the minimalist megahospital.

The details of the six waves of health architecture in history are as the followings:

The Ancient era

The early practice and facilities for treating the sick were temples dedicated to healing gods. The Egyptian did not have hospitals. Much of medicine practice still relied on magic. Egyptian doctors used herbal remedies and minerals in their healing. They used ointments and honey in wound dressing and healing. Egyptian surgery was basically limited to broken bones, dealing with boils and abscesses.

Magic and later on religion were always parts of ancient medicine. Temples dedicated to Imohep in Egypt and to Asklepios in Greece (Gormley, 2010). The symbol/emblem of Medicine today is a picture of Asklepios with two serpents entwined round a staff. The snake is a symbol of mystic, magical, and supernatural power.

The Greek, though, did not have hospitals. Greek physician treated patients in their homes. The Greek Aescleption was more a temple than hospital. In Aescleption, patients received the benefit of prayers and sacrificial offerings which were intended to influence the god of healing, Asklepios.

The Greeks were recognized as the originators of rational medicine. The basis of Greek medicine was the body's natural ability to heal itself (pepsis), so diet and exercise were more important than taking medicines. Surgical skills were developed on the battlefield. Hippocrates, a native of the island of Kos, (460-375 B.C.) (Osler, 1913), the 'father of medicine' whose school produced over 60 medical texts (the Hippocratic Corpus), developed the concept of the four humors, with a person's environment and lifestyle being responsible for imbalances. Treatment consisted of a prescription of diet, exercise and limited medicines. Medical schools were established in Greece in 6th Century BC. The first teaching hospital with visiting physicians and scholars from Egypt, India, and Greece was founded at Gondeshapur in present day Iran in 300 AD (Gormley, 2010).

The early healthcare facilities were the Roman military hospitals, valetudinarian, which built in forts across the empire. Roman military hospitals, one in Vindossa in present day Switzerland built in the 1st century AD, showed small patient room with ante rooms built around courtyards. The word "*hospital*" also comes from the Latin word "*hospes*" for host, or "*hospitium*" which means a place to entertain (Gormley, 2010). Public hospital was still not available, and Roman

physicians still made house calls (Gormley, 2010). The surgical equipment and houses of the surgeon, not hospitals, were found in Pompeii.

Galen, 130-200 AD, was a famous Greek doctor in Rome. The works of Galen form a vast encyclopedia of medicine including anatomy, physiology, clinical medicine, surgery, and medical history. His beliefs and writing influenced medicine for another 1000 years (Major, 1954; Saunders & Jenny., 1992).

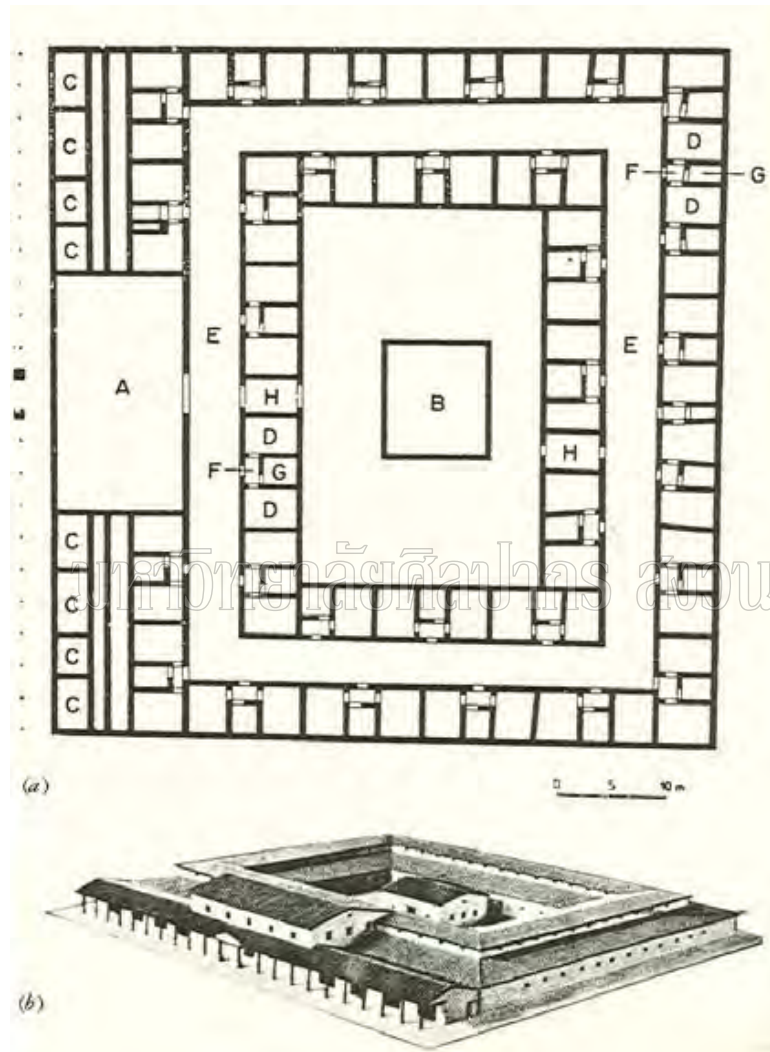


Figure 3: Valetudinarii, the Roman military hospital

(Source: Image from Hospital Design Promoting Patient Safety (Barach & Dickerman, 2006)

Institutions that might create specifically to care for the ill appeared early in south Asia. The Mahavamsa record (6 AD), the ancient chronicle of Sinhalese royalty from Sri Lanka, indicated that the Sinhalese King Pandukabhaya (reigned 437 BC to 367 BC) had hospital built in Sri Lanka in the 4th century BC (Gormley, 2010; Rannan-Eliya & de Mel, 1997). Heinz E Muller-Dietz (Historia Hospitalium, 1975) describes hospital, Mihintale, a mountain peak near Anuradhapura in Sri

Lanka, as being perhaps the oldest in the world. The hospital appeared to have comprised of a central courtyard surrounded by cells for the treatment of the sick and an adjoining second courtyard with surrounding rooms which were used for the storage and preparation of medicines, besides other purposes ("Hospital,").

According to the Carakasamhita (Caraka's Compendium, 2 BCE-1 CE), India might be the first part of the world having record of the organized civic hospital. The Caraka's Compendium mentioned of physicians, how to set the hospital building, how to set medical staff, medical supplies and medicines (Wujastyk, 2007).

Fa Xian (Fa-Hsien), a Chinese Buddhist monk visited India in AD 399, stayed for 16 years,(AD 399-414) (I-Ching, 1995), and after his return translated many Sanskrit Buddhist texts into Chinese. He recorded in his travelogue that: *"The heads of the Vaisya (merchant) families in them establish in the cities houses for dispensing charity and medicine. All the poor and destitute in the country, orphans, widowers, and childless men, maimed people and cripples, and all who are diseased, go to those houses, and are provided with every kind of help, and doctors examine their diseases. They get the food and medicines which their cases require, and are made to feel at ease; and when they are better, they go away of themselves"* (Legge, 1886). Another health facility in a smaller size might be the health house (*Sanskrit:arogya-vihara*). The one discovered in archeological excavations at Kumrahar, eight kilometers from Patna, The buildings, 300-450 AD, had four rooms of varying size, with walls of fire-baked bricks and brick floor.

Hiuen Tsang (Hsuan Chuang, AD 602-664) (I-Ching, 1995), another Chinese Buddhist monk, visited India in AD 629, also described India in the early seventh century: *" ... in all the highways of the towns and villages throughout India, he (King Harsavardhana/Siladitya) erected hospices, provided with food and drink, and stationed there physicians, with medicines for travelers and poor persons round about, to be given without any stint.."* (Wujastyk, 2007).

The Medieval period (roughly from the 5th century to the 15th century, the period between the downfall of classical civilization and the revival of learning in fifteen century, ~ 476-1440 (Major, 1954)).

After the Roman Empire converted to Christianity, the Church was then became the main resource of medical practice and later on hospitals. After Christianity spread thru Europe, the concept of caring for less fortunate members of society became more popular. Religious institutions provided most of the healthcare to the poor in large, open wards. The physicians continued the practice making house calls to the upper class.

After 400 AD, many monasteries were constructed generally including accommodations for travelers, the poor, and the sick. Hospital always located at monasteries, such as Cluney in France, these developed from adjunct functions to purpose built components of the monastery complex (**Figure 4**). In Cluney, St Hugh's infirmary was built in 1082. It was two-storied open hall 40 by 80 feet that could accommodate about 24 sick monks. About 1135, the monk number increased and a huge infirmary hall was added to the monastery. The Hall was about 212 feet long through the eastern porch and 112 feet wide and 87 feet high to the central roof tree. This infirmary could accommodate 80-100 patients (Barach & Dickerman, 2006). The technology of care in these institutions was not much better than the Greek medical practice.

Around 431 AD, the Nestorians translated Greek books into Syriac, including the Hippocratic Corpus and the works of Galen. With the rise of Islam in the 7th century, medical schools spread in Persia (Major, 1954). In Islamic world, a large number of hospitals sprung up from the end of 8th century and the beginning of 9th century (Gorini, 2002).

Islamic medicine and hospitals were well organized and advanced. The hospitals had both outpatient and inpatient units. Hospitals had separate wards for male patients and female patients. Each ward was with a nursing staff and porters of the sex of the patients to be treated therein. Some of the very efficient hospitals during Islamic period (Syed, 2011).

Al-Nuri Hospital: the Umayyad Caliph, Al-Walid, built the first hospital in Islam in Damascus in 706 CE. Al-Nuri hospital named after King Nur Al-Din Zangi was built in 1156 CE during the crusades. It was a first class hospital and medical school. The hospital initiated medical record keeping-the first in the world. The hospital served the public for over seven centuries.

Al-Salahani hospital: It was built in Jerusalem in 1055 CE by the Crusaders as Saint John Hospital. It was renamed Al-Salahani Hospital in 1187 CE. Salah Al-Din expanded the hospital and it served the people until 1458 CE when it was destroyed by an earthquake.

Al-Muqtadiri hospital, Baghdad, 918 CE by Caliph Al-Muqtadir.

Al-Adudi hospital: Baghdad, 981 CE. It was the most magnificent hospital built in Baghdad before modern times. It was outfitted with the best equipment and supplies available at that time. It had residents, interns, and twenty-four consultants to care and look after the patients. It was destroyed by Hulagu, the grandson of Chengiz Khan in 1258.

Al-Fustat hospital, Al-Fustat (part of old Cairo), 872 CE by Ahmed Ibn-Tulum. It served the population of Cairo for six centuries.

Al-Mansuri hospital, Cairo, 1248 CE by King Al-Mansur Qalawun. While fighting the Crusaders, general Qalawun became sick and was treated in Al-Nuri hospital. On recovery, he vowed that if he ever became the ruler of Egypt, he would build a larger and magnificent hospital in Cairo for the sick, poor and rich alike. It served four thousands patients daily. It has served for the past seven centuries. Today it is used for ophthalmology and is called Mustashfa Qalawun.

Al-Qayrawan hospital: In 830 CE Prince Ziyadat Allah I, built this hospital in the district of the Qayrawan city called Al-Dimnah, Tunisia. It had spacious separate wards, waiting rooms for visitors and patients, and female nurses from Sudan, the first use of nursing in Arabic history. The hospital had a mosque for prayers.

Marakesh hospital: Marakesh, Morocco, 1190 CE, King Al-Mansur Ya'qub Ibn-Yusuf. It was beautifully landscaped with fruit trees and flowers. Aqueducts carried water to all sections. Patients were provided with special attire: one for winter and another for summer. Specialists called Sayadlah ran the pharmacy. There was an expensive private room where patients were charged.

Granada hospital, Spain in 1366 CE, Prince Muhammed Ibn-Yusuf Ibn Nasr built this hospital in the city of Granada which had a population of half million. This hospital had the beauty of the Arabic architecture and served the people until the fall of Granada in 1492 CE.

Delhi hospitals: In the fourteenth century in Delhi, India, there were one thousand schools and colleges (madrasas) and seven hundred hospitals, two thousand Sufi lodges and hospices in and around Delhi.

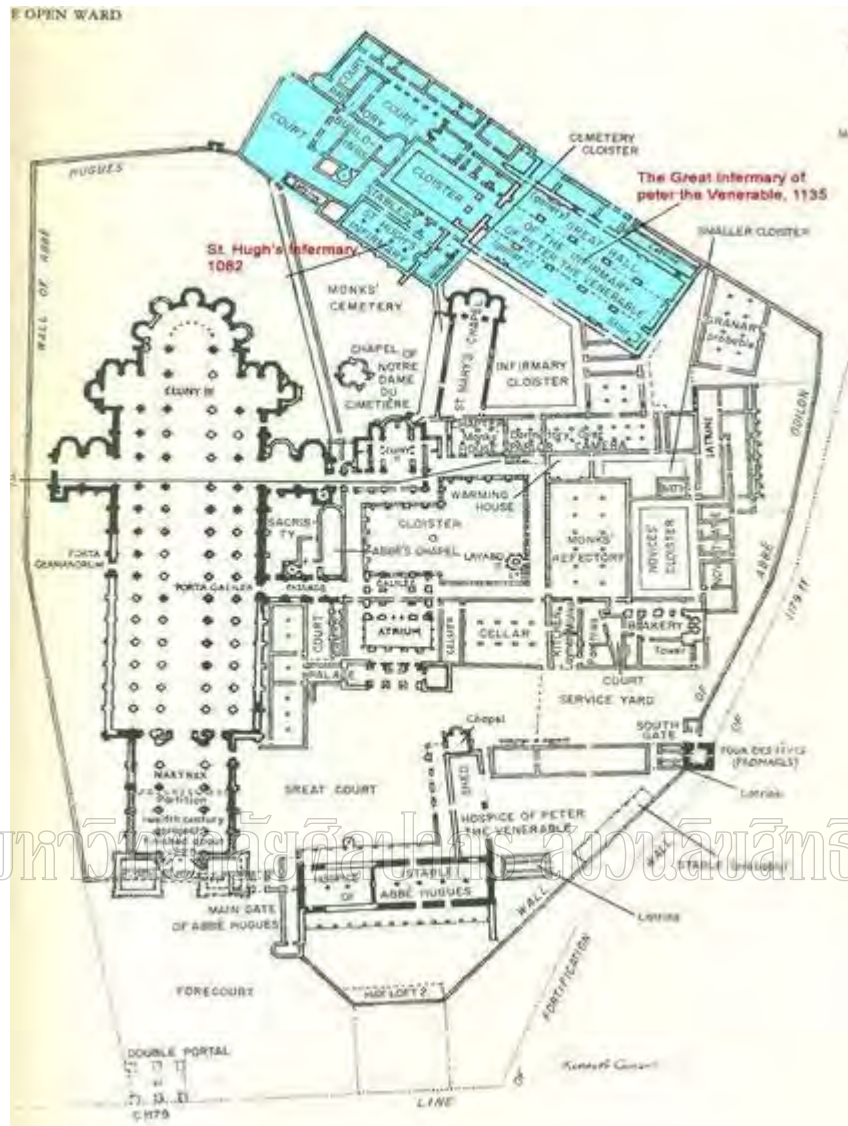


Figure 4: Ground floor plan of Cluney Monastery, 1157

(Source: Image from Hospital Design Promoting Patient Safety (Barach & Dickerman, 2006)

In Southeast Asia around 1200 CE, Jayarvarman VII of the Cambodian kingdom of Angkor was founding 102 hospitals across his kingdom. To quote some details from the stele inscription of Sey-feng in Loas in summary: *the text of the inscription mentions the persons employed by the hospital; nursing staff and servants. The hospital is open to the four castes. Two doctors are to attend each caste; they are assisted by a man and two women with a right to lodging. The personnel also includes two dispensers responsible for the distribution of remedies, receiving the measure of rice...the text gives a long list of the medicaments placed by the king at the disposition of the sick* (Henderson, et al., 2007).

The Renaissance (roughly from the 14th to the 17th century)

Religious institutions continued to provide most of the healthcare mainly to the poor in large, open wards. Physicians continued the practice of making house calls for the upper class. The religious influence in early healthcare is illustrated by duties of the Warden (Administrator) of St Mary's Hospital in England in 1390. He was required to not only satisfy himself of the seriousness of the medical complaint, but to also hear the confession of the patient before admission (Gormley, 2010). During the renaissance designers continued to struggle with the problems of waste removal and ward design. The Ospedale Maggiore (1456 AD) designed by Antonio Filarte in Milan (**Figure 5**), had developed system of latrines near patient sleeping areas. However, the waste was discharged directly into the public waterway. The ward was designed for the purpose that patients could see the altar of the patron saint on their beds (Barach & Dickerman, 2006). The wards housing multiple patients continued to be expanded and became the standard for the public hospitals for hundreds of years. Often the ward was configured to enable the patient to see the altar to assist with their recovery. The cross-shaped plan, which thought to have originated in Florence, Italy, in the 1400s, was with the altar in the middle and multiple wards radiating from it. Florence was well known for quality hospitals with good physicians and clean beds (Gormley, 2010). As the hospital ward became larger, some has over hundred beds with multiple patients per bed. The ward was dark, poorly ventilated, and unsanitary. The pavilion-type hospital (*pavillonnaire*) or rack-like hospital (*pavillon en peigne*) was then implemented, for example, the Lariboisiere Hospital (**Figures 6&7**) (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001), Paris, which was built in 1845.

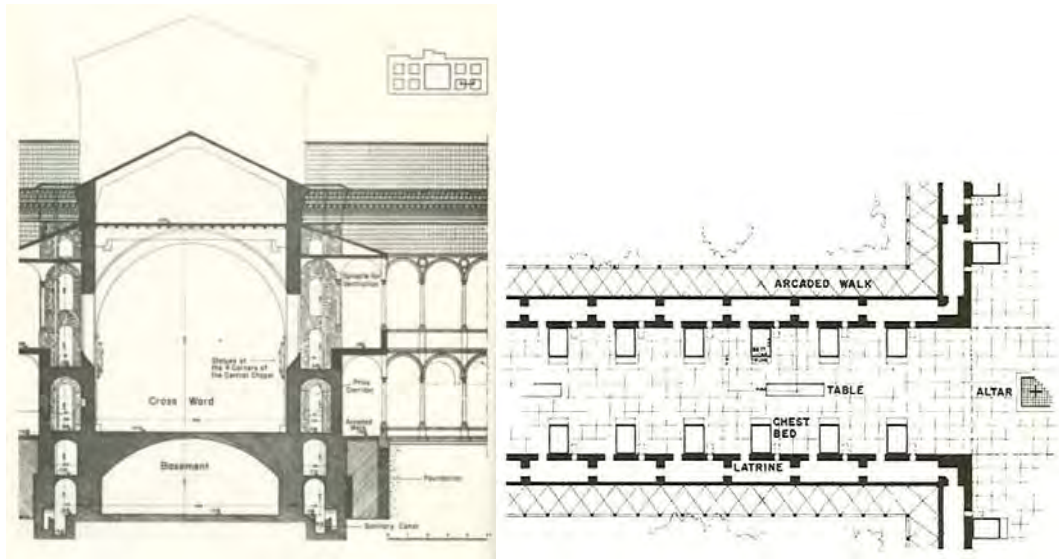


Figure 5: The plan and cross section of Ospedale Maggiore, 1456 AD, designed by Antonio Filarte in Milan demonstrates waste removal, and a design in which the patients could see the altar

(Source: Image from Hospital Design Promoting Patient Safety (Barach & Dickerman, 2006)

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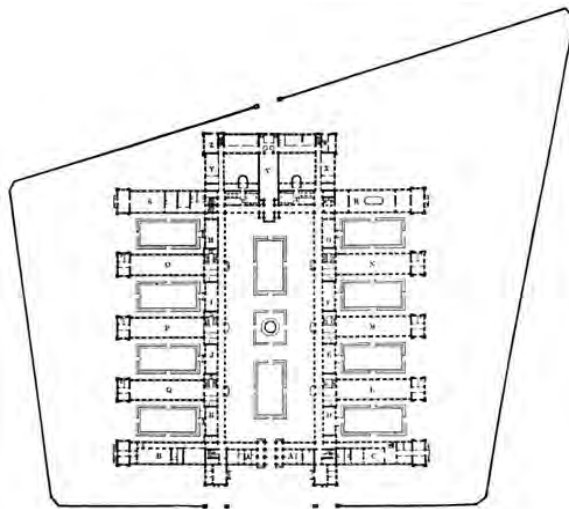


FIG. 3.—Lariboisière Hospital, Paris.

Figure 6: Plan of Lariboisière Hospital, Paris, 1845 AD


(Source: Image from Evolution of the military hospital U.S. Army Medical Department Office of Medical History ("Evolution of the military hospital,"))














Figure 7: Lariboisière Hospital, Paris, 1845 AD



















(Source: Photo from Paris Hospital Lariboisière Cortile interno ("Paris Hospital Lariboisière Cortile interno,"))

Table 1: List of the Renaissance hospitals in Europe (*Patrimoine hospitalier un parcours a travers l'Europe, 2001*)

No.	Name	Country	Year built	Typology	Lay out
1	Ospedale di Santa Maria della Vita	Bologne, Italy	1287	Hopital type halle (hospital church)	
2	Hopital Notre-Dame-des-Fontenilles	Tonnerre, France	1293	Hopital type halle (hospital church)	  
3	Hopital St Pieters en Bloklands	Amersfoort, Netherland	1390	Hopital type halle (hospital church)	
4	Hospital de la Santa Creu	Barcelona, Spain	1401	Hopital classique, ou en damier (checker board square hospital)	 
5	Hotel-Dieu	Beaune, France	1443-1451	Hopital type halle Hopital classique, ou en damier	

No.	Name	Country	Year built	Typology	Lay out
6	Hospital de Santa Maria	Lleida, Spain	1454-1520	Hopital classique, ou en damier (checker board square hospital)	
7	Ospedale civile (Guglielmo da Saliceto)	Piacenza, Italy	1471	Hopital classique, ou en damier (checker board square hospital)	 
8	Ospedale Vecchio	Parme, Italy	1476	Hopital type halle (hospital church)	 
9	Hopital Leeuwenberg	Utrecht, Netherland	1567	Hopital type halle (hospital church)	
10	Hopital Saint-Louis	Paris, France	1607-1611	Hopital classique, ou en damier (checker board square hospital)	 
No.	Name	Country	Year built	Typology	Lay out

11	Groupe hospitaluer Pitie-Salpetriere	Paris, France	1656	Hopital classique, ou en damier (checker board square hospital)	 
12	Amstellhof	Amsterdam, Netherland	1683	Hopital classique, ou en damier (checker board square hospital)	

(Source: Photos  from (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001)  from ("Ancien hôtel Dieu Notre-Dame-des-Fontenilles et hôpital dit pavillon dormois monument historique,")  from (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001)  from ("Amersfoort, a medieval city ")  from (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001)  from ("Hospital of the Holy Cross and Saint Paul,")  from ("What you know about Beaune?,")  from ("Gothic patio of former Hospital de Santa Maria (now Institut d'Estudis Ilerdencs). Lleida. Catalonia. Spain,")  from ("Orientarsi in ospedale,")  from ("Pediatria, acquistato uno strumento per rilevare i parametri vitali,")  from ("Parma, Archivio di Stato - Ospedale Vecchio,")  from ("Archivio di stato di Parma,")  from ("History and organisation of the Dutch 8th militia battalion ")  from ("Baron Jean-Louis Alibert 1768-1837,")  from ("Paris, unknown parts,")  from ("Centre de référence du syndrome de Gilles de la Tourette,")  from ("Pitie-Salpetriere,")  from ("Amstellhof,")

In Asia, in the early sixteen century, the Portuguese founded a hospital in Goa, India, for their own soldier and seamen soon after the creation of the colony in 1510. The Portuguese were responsible for the first western-style hospital in Asia(Henderson, et al., 2007).

The Nightingale era

The mortality rate of 42% of the admission to the military hospital in Turkey during the Crimean war was the data collected by Florence Nightingale, 1820-1910, (Barach & Dickerman, 2006). The death rate in the military hospital at Scutari, which was 42 % in February, 1855, fell to 2 % in June of the same year (Major, 1954). She was a nurse who used statistic to achieve her hospital and medical practice revolution. Nightingale with staff of 38 nurses arrived at Scutari in 1854 during the British Crimean war. There, she found a poorly ventilated filthy hospital, swarming with mice and lacking most of simple items of medical care, and primitive sanitary arrangements. There were even no proper medical records in the field hospital. She introduced a system of recording the sickness and mortality data to the military hospital. At some points during the conflict, there were more British soldiers in the hospital than available for duty on the battlefield. The correspondence she sent back to England enraged the public. Her calculation of mortality rate showed that improvement in sanitary conditions would lead to a decrease in deaths rate.

From the Scutari report, the later British hospital was modular, so that it could be constructed in England, disassembled, shipped to Turkey, and reassembled. It was cheap, and made of materials that were easily clean (Barach & Dickerman, 2006). The patient wards, individual huts for about 50 men, had some unique features. One of these was a ventilation system that forced 1,000 cubic feet of air per minute through two ducts underneath the floor. The air was discharged into the ward thru grilles in the floor and traveled upward and out. The hospital at Renkioi was a combination of ward huts and special purpose structures for cooking, cleaning, and other aspects of care and operation all organized in a grid-like layout which facilitated the placement of water supplies and drains (**Figure 9**) (Barach & Dickerman, 2006).

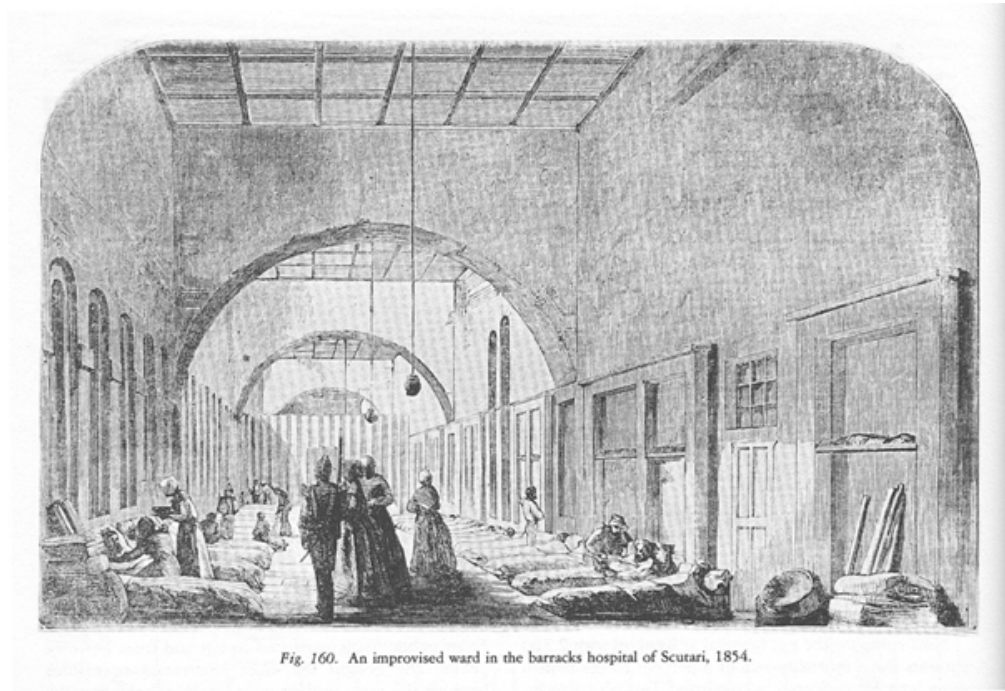


Fig. 160. An improvised ward in the barracks hospital of Scutari, 1854.

Figure 8: The Nightingale ward, Turkish barracks at Scutari, Illustrated London News, December 16, 1854.

(Source: Image from World Health Design ("World health design,"))

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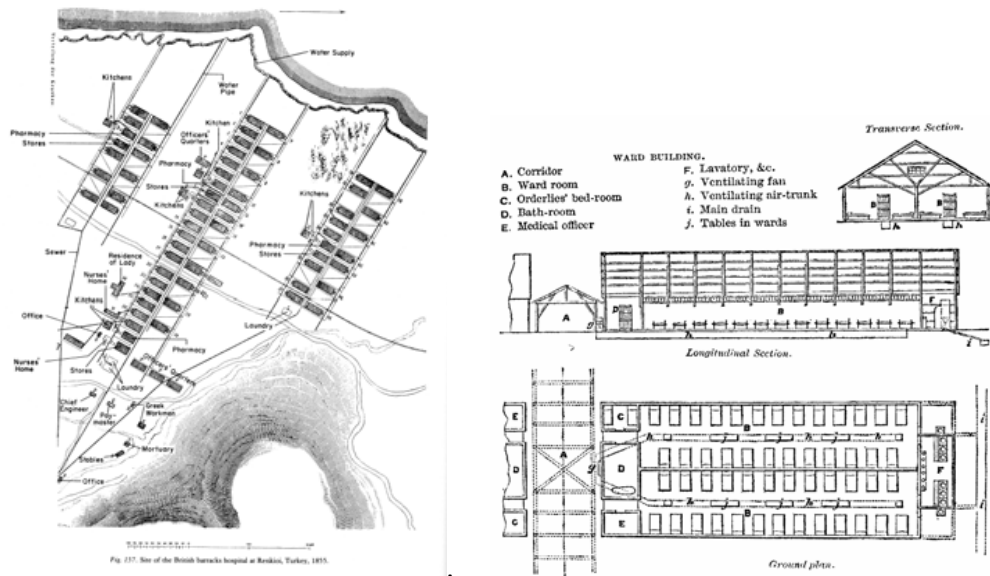


Figure 9: The Nightingale ward at Renkioi

(Source: Image from Notes on Hospitals (Nightingale, 1863))

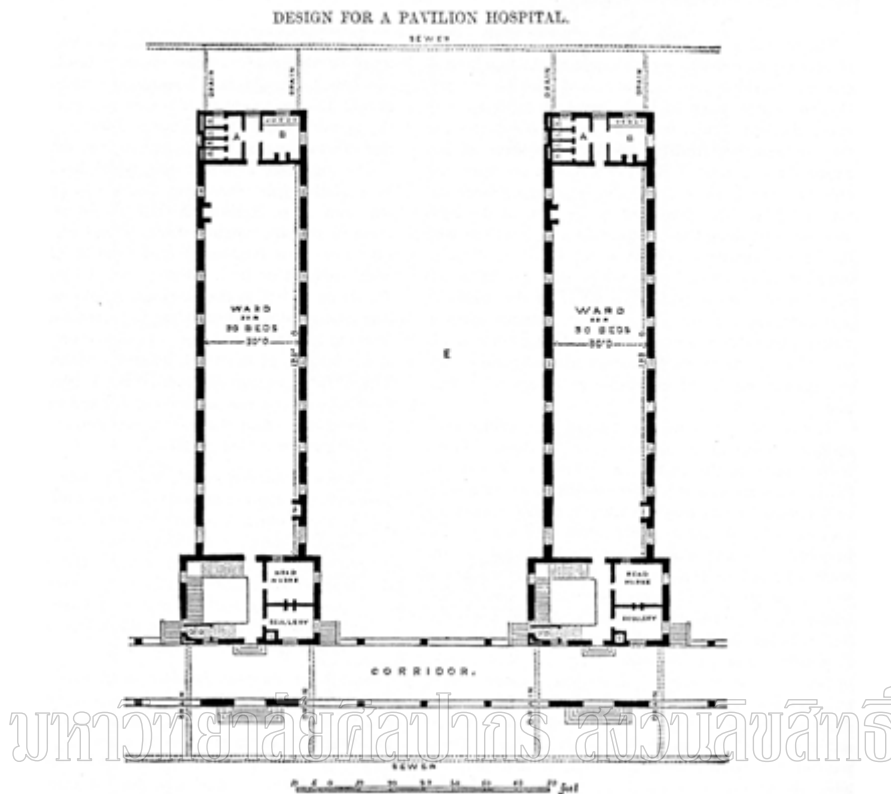


Figure 10: The Nightingale ward

(Source: Image from Notes on Hospitals (Nightingale, 1863))

Florence Nightingale wrote two seminal books, “Notes on nursing” (1859), and “Notes on hospitals” (1863), with the contents of nursing practice, hospital planning and design (Chaudhury, Mahmood, & Valente, November 2003). Large multi-occupancy ward, pavilion type, for better healing environment, hospital was recommended by Nightingale. She noted on Principle of hospital construction, “Notes on hospitals”: *“The first principle of hospital construction is to divide the sick among separate pavilion. By hospital pavilion is meant a detached block of building, capable of containing the largest numbers of beds that can be placed safely in it, together with suitable nurses’ room, ward sculleries, lavatories, baths, water-closet, all complete, proportioned to the number of sick, and quite unconnected with any other pavilions of which the hospital may consist, or with the general administrative offices, except by the light airy passages or corridors. A pavilion is indeed a separate detached hospital, which has, or ought to have, as little connexion in its ventilation with any other part of the hospital, as if it were really a separate establishment miles*

away” (Nightingale, 1863). She focused on providing patients with access to natural light, air, landscape, attention to diet, as well as a cleanly, sanitary environment: *“Artificial ventilation may be necessary, [but] it never can compensate for the want of the open window . . . Second only to fresh air, however, I should be inclined to rank light in importance for the sick . . . Among the kindred effects of light I may mention, from experience, as quite perceptible in promoting recovery, the being able to see out of a window, instead of looking against a dead wall; the bright colors of flowers; the being able to read in bed by the light of a window close to the bed-head. It is generally said that the effect is upon the mind. Perhaps so; but it is no less so upon the body on that account”* (Nightingale, 1863).

Nightingale’s principles were first implemented in Henry Currey’s design of St Thomas’s Hospital (**Figures 11,12&13**) in Southwark, London, which was built between 1868 and 1871. The planning of this hospital, reflects the pavilion configuration (*hopital pavillon en peigne*) (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001), of the nursing unit with efficient circulation, and humanistic principles that she outlined in her work. The pavilion style hospital design was originated in France in the 18th century and was popularized in England by John Roberton and George Godwin in the mid-19th century. The underlying rationale was that with improved ventilation the mortality rate was significantly reduced. One of the leading exponents of this style of hospital architecture was Henry Currey (1820–1900) whose greatest achievement was undoubtedly the design for the new St Thomas's Hospital on the Lambeth Palace Road (Cook, 2002).

Nightingale’s influence on hospital design was recognized and implemented over the next hundred years. Its far-reaching effects can be seen from the early works of the Veterans Administration hospitals in the United States until the beginning of World War II.

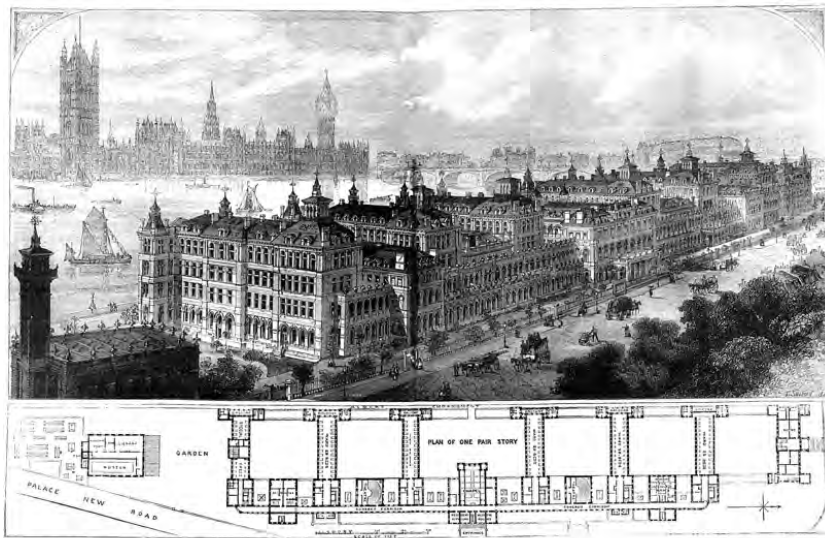


Figure 11: The completed “pavilion planned”, St Thomas’s Hospital, Southwark, London.

(Source: Image from History of medicine. Henry Currey Friba (1820–1900): leading Victorian hospital architect, and early exponent of the “pavilion principle” (Cook, 2002))

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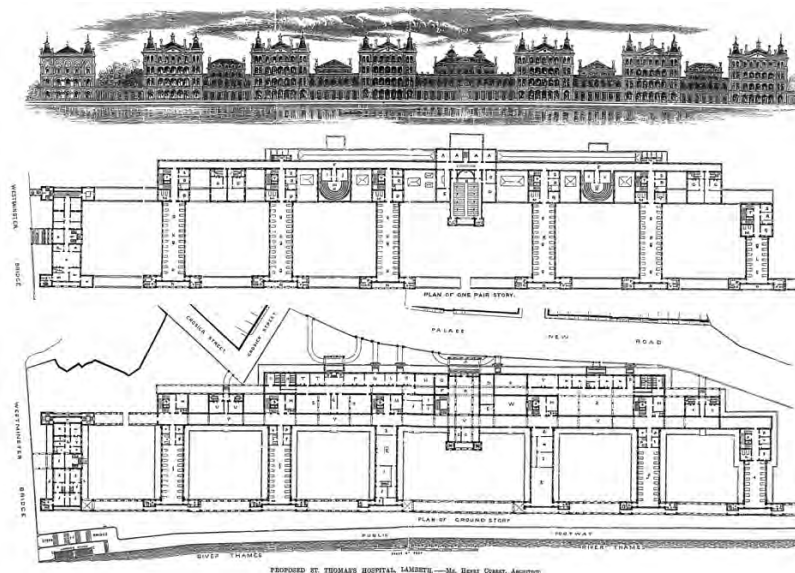


Figure 12: Henry Currey’s plan for St Thomas’s Hospital, Southwark, London.

(Source: Image from History of medicine. Henry Currey Friba (1820–1900): leading Victorian hospital architect, and early exponent of the “pavilion principle” (Cook, 2002))



Figure 13: St. Thomas's Hospital in Southwark, London.

(Source: Photo from *Patrimoine hospitalier un parcours a travers l'Europe*

(*Patrimoine hospitalier un parcours a travers l'Europe*, 2001))

The Minimalist megahospital

After the World War II, the pavilion style hospital and Nightingale's original concept of hospitals with fresh air, light, and views has been slowly replacing by deep plan hospitals that prioritized efficiency over human comfort and healing (Burpee, 2008). The hospital form began to change from pavilion style to a deep span, multi-floor block (*hopital monobloc*), podium on platform (*hopital tour sur socle; tower on a plinth hospital*), or multi-unit block hospital (*hopital polybloc*) typology. Building technology facilitated the transformation with new ability to create long span structure, mechanically ventilate interior space, and move people vertically by elevator. As the progress and advancement of diagnostic and medical treatment, the structure has become bigger and taller. The hospitals were with very deep floor plates and subterranean spaces with little or no relationship to the outside environment, natural air, light, and view. Sophisticated heating, ventilation, and air conditioning system encourage the abandonment of the obsolete Nightingale ward. However, there are very limited evidence-base studies demonstrated on how changes in form of the hospital affect human stress, health, and comfort.

The Virtual healthscape

If the hospital machine hospital, in its enormity, functioned as a magnet, drawing to it all feasible services and subspecialties in the name of efficiency from viewpoint of a provider-focused system, the postmodern hospital has become a centrifuge, spinning off parts from its core to reinsert them in the surrounding community in an age of patient-centered care. At the same time, the information age is profoundly influencing how we define health and how we care for ourselves (Verderber S 2000) (Verderber & Fine, 2000). One can choose the means by which one accesses and receives information and care.

Trends of the contemporary health landscape

Verderber S also proposed six trends of the contemporary health landscape (Verderber & Fine, 2000):

1. **Home and the health village:** the reemergence of home-based care and the raise of the health village.
2. **Functional deconstruction and residentialism:** the functional deconstruction and transformation of the acute-care hospital into the critical care center.
3. **Self-determination versus provider determination:** the dialectical tension between self-determination and provider determination, and the resulting redefinition of access points and service point.
4. **A sustainable health landscape:** this bases on principles of renewability, flexibility, mobility, appropriate construction technologies, and conservation method.
5. **The natural environment and health architecture:** recognition of the necessity of incorporating and sustaining the natural environment as therapeutic modality in the design, management, and daily experience of health facilities, and in all buildings and settings for human habitation.
6. **Interdisciplinary aspects of health architecture:** interdisciplinary approaches to address complex health, environmental design, and biotechnical problem at the community, regional, national, and international levels, with particular emphasis on ethics, aesthetic literacy, patient-centered care, and sustainable design concerns.

Humanized health care

Howard J. (1975) identified eight necessary and sufficient conditions for humanized health care (Howard J. & A., 1975; Verderber & Fine, 2000) briefly summarized as:

1. **Inherent worth of human being:** human beings are objects of value, to themselves if not to others.
2. **Irreplaceability of individual:** Human beings are unique and irreplaceable. When people are stereotyped and treated in terms of commonalities rather than differences, dehumanization can logically follow.
3. **Holistic selves:** At any given moment the sum of total of a person's experience influences that person's feeling, attitudes, and actions.
4. **Freedom of action:** Humanized relationships are predicated on freedom of choice.
5. **Status equality:** Humanized relations involve equals on some level. If either sees his or her total self as superior or inferior to other, the interaction cannot be fully humanizing.
6. **Shared decision making and responsibility:** All patients have right to participate as much as possible in decisions about their care.
7. **Empathy:** If practitioners contain their sympathy and avoid seeing the world from the vantage points of their patients, they cannot as readily understand the needs of those patients and appropriately respond to them as unique human beings.
8. **Positive effect:** human beings are reservoirs and conveyors of emotion.

In medical education, humanized healthcare is the current direction of medical education and medical service. Healthcare will be more decentralized and more residential oriented. Healthcare architecture needs to prepare for the flexibility, renewability, changing in construction techniques and also conservation method.

Some claim that hospital design and form follow function, and hospital architecture is a part of medical advancement. Some claim medical change does not necessary inspires new architectural forms. As Adams noted(Adams, 2007), hospital architecture is not a passive illustration of medical history, contemporary hospital architecture is derived more from cotemporary architectural ideas than medically determined. Hospital in nineteen century Canada looked like Scottish castles and postmodern hospitals like luxury hotels and shopping malls, while the modern hospitals tend to resemble office buildings.

The next sections will focus on form of the hospital and effect of medical knowledge on healthcare architecture.

Forms of hospital according to the European Hospitals Heritage (Present et avenir du patrimoine hospitalier europeen, PAPHE) (*Patrimoine hospitalier un parcours a travers l'Europe*, 2001)

The European Hospitals Heritage (*Present et avenir du patrimoine hospitalier europeen, PAPHE*) classified hospitals according to their forms into nine different categories (**Figure 14**):

1. Hall type hospital (*Hopital type hall*): hospital churches, generally rectangular- shaped rooms, laid out perpendicular to the religious buildings.
2. Hospital house (*Maison hospitaliere*)
3. Checker board square hospital (*Hopital classique, ou en damier*)
4. Rack-like hospital (*Hopital pavillon en peigne*): separate pavilions are joined by a gallery.
5. Pavilion-type hospital (*Hopital pavillonnaire*): the hospital complex, which is fragmented, consists of completely detached pavilion.
6. Palace hospital (*Palais hospitalier*): often financed by rich patrons. Came in shape of a small castle or rich person's villa.
7. Single-unit hospital (*Hopital monobloc*): single block hospital
8. Tower on a plinth hospital or podium on platform (*Hopital tour sur socle*)
9. multi-unit hospital (*Hopital polybloc*): multiple-unit hospital

The styles of hospital design development are the outcome of cultural, scientific, medical, and architectural progress in combination.

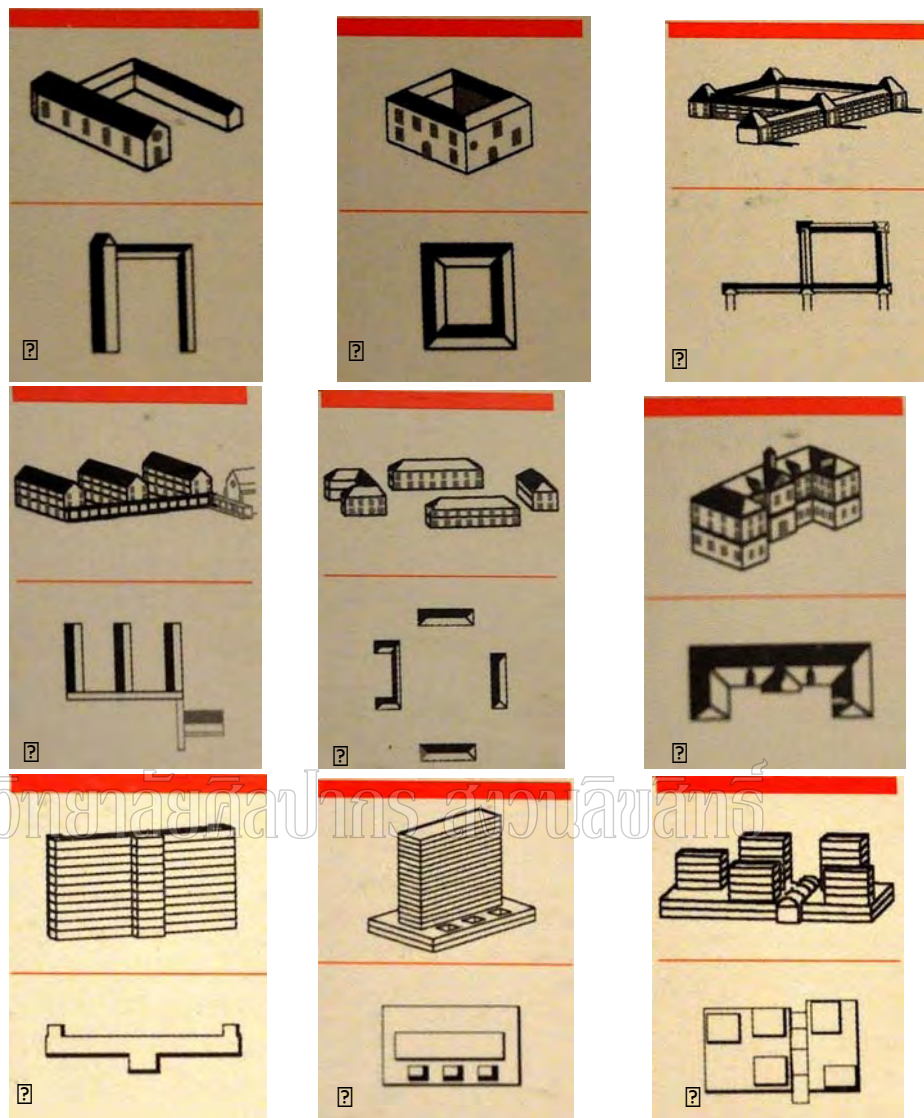


Figure 14: Forms of hospital according to the European Hospitals Heritage (*Present et avenir du patrimoine hospitalier europeen, PAPHE*)

(Source: Images from *Patrimoine hospitalier un parcours a travers l'Europe (Patrimoine hospitalier un parcours a travers l'Europe, 2001)*)

Replacement of older building in the hospital is widely being practice. Hospital building design is usually the result of gentle combination of sympathy, cultures and beliefs, social attitude, technology, and the rapid advancement of science and medical knowledge. Changing in hospital design reflects the continuity of changing social attitude and the science's impact on architecture ("Designation listing selection guide health and welfare buildings ", 2011). Alteration and

replacement of older building in the hospital are inevitable, partly from changing in healthcare demand and economic, partly from social attitude and partly from the advancement and impact of technology and medical science.

The role of the hospital is in transformation. The main parameters, which have impacted changes in hospital architecture, are (Gupta & Kant, April-June 2005):

1. Enhanced patients' expectations
2. Increased emphasis on ambulatory care
3. Enhanced standards of care
4. Demographic and epidemiological changes
5. Medical Insurance
6. Public-private partnerships
7. Effects of globalization on healthcare delivery

Essentials of hospital architecture is to have buildings that are efficient in present operations and yet flexible enough to adopt for the perspectives of tomorrow.

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Medical knowledge and its' impacts on hospital design and setting("History of medicine timeline," 2011):

- ~ **2600 BC**: Imohep in Egypt described the diagnosis and treatment of 200 diseases.
- **460 BC**: Hippocrates, the 'father of medicine' whose school produced over 60 medical texts (the Hippocratic Corpus). The concept of the four humors with a person's environment and lifestyle being responsible for imbalances.
- **430 BC**: King Pandukabhaya (reigned 437 BC to 367 BC) had hospital built in Sri Lanka (Gormley, 2010; Rannan-Eliya & de Mel, 1997).
- **200 BC**: Carakasamhita (Caraka's Compendium, India). The Caraka's Compendium mentioned of physicians, how to set the hospital building, how to set medical staff, medical supplies and medicines(Wujastyk, 2007).
- **100**: Roman military hospitals, Valetudinarian at Vindossa in present day Switzerland was built.
- **300**: Gondeshapur, the first teaching hospital was founded at Gondeshapur in present day Iran.
- **400**: Fa Xian, a Chinese Buddhist monk visited India(I-Ching, 1995). He recorded in his travelogue: *"The heads of the Vaisya (merchant) families in them establish in the cities houses for dispensing charity and medicine*(Legge, 1886).
- **600**: Hiuen Tsang(I-Ching, 1995), another Chinese Buddhist monk, visited India. He described India in the early seventh century: *"... in all the highways of the towns and villages throughout India, he (King Harsavardhana/Siladitya) erected hospices, provided with food and drink, and stationed there physicians, with medicines for travelers and poor persons round about, to be given without any stint.."* (Wujastyk, 2007).
- **1082**: Cluny, St Hugh's infirmary was built.
- **1858-1859**: Florence Nightingale wrote two seminal books, "Notes on nursing" and "Notes on hospitals", about nursing practice, hospital planning and design (Chaudhury, et al., November 2003). The pavilion type hospitals were recommended.
- **1867**: Lister published Antiseptic Principle of the Practice of Surgery, based partly on Pasteur's work.
- **1870**: Louis Pasteur and Robert Koch established the germ theory of disease.
- **1888**: Jelius Wagner-Jauregg, MD, a Viennese psychiatrist published a monograph on the survey after the epidemics of typhoid, malaria, smallpox, and scarlet fever through asylums. In 30 cases of mental ill patients who recovered from the fever also had remission in their psychotic symptoms. In

his monograph, he suggested that malaria might be able to use to induce a "fever cure" in psychotic patients(Shorter E., 1998).

- **1905:** Fritz Schaudinn, a German zoologist, discovered the pathogenic agent for syphilis, *Spirochaeta pallida (Treponema Pallidum)*. In the same year, Karl Landsteiner, MD proved that fever was able to kill the syphilis-causing spirochetes.
- **1906:** August von Wassermann, a German bacteriologist, discovered the serological test for syphilis.
- **1917:** Surprising discovery by Jelius Wagner-Jauregg, MD., high fever from malaria cured psychotic patients ("fever cure"). The finding led to 30-50% discharge of mentally ill patients from the asylums(Shorter E., 1998).
- **1927:** Jelius Wagner-Jauregg, MD, got a Nobel Prize for his great impact on psychiatric patients.
- **1929:** Penicillin was found.
- **1934:** Success in treatment schizophrenics with insulin coma.
- **1938:** Ugo Cerletti, professor of Psychiatry in Rome used 1st Electroconvulsive therapy (ECT), (he used to study with Kraepelin).
- **1944:** Penicillin was an overwhelming success.
- **1951:** Chlorpromazine was found: It was the first drug that ever worked in psychiatric history: the French psychiatric practice was completely changed: no more chain.
- **1953:** James Watson and Francis Crick work on the structure of the DNA molecule.
- **1955:** Jonas Salk develops the first polio vaccine.
- **1980:** Smallpox is eradicated.

There are couples of landmarks in Medicine that may explain the correlation between medical innovation and changing in healthcare utilization, which lead to changing in healthcare architectural design, for example, finding of the germ theory by Louis Pasteur and Robert Koch in 1870 led to the invention of antiseptic and antibiotics. The mortality from infectious disease has been dropped dramatically. By the invention of anesthetic medication and antibiotic, the survival rate from surgery is significantly improved. The hospital then became more house of cure than house of care. The accidentally found "fever cure" in chronic asylum (Shorter E., 1998) lunatic patients, psychiatric symptoms from cerebral syphilis, led to half in the patient occupancy in the asylum, which led to close down of many asylum. Asylum had slowly disappeared from medicine, since then. The second breakthrough in Psychiatry was the invention of first psychiatric medication,

Chlorpromazine, which made psychiatric treatment become more outpatient oriented, than hospital bound like the asylum period. After that, psychiatric treatment has leaned toward more outpatient-oriented, medical approach, and later more on community based care psychiatric treatment. Medical practice in the future will lean toward more on disease prevention, health promotion, and well-being healthcare

Thai medical and hospital history

Traditional Thai medicine was influenced by two major cultures, Indian and Chinese. The ancient Thai tradition medicine is also influenced by supernatural and magic believes. As the expansion of sea trade, Thai traditional medicine got influence from two major cultures, Indian and Chinese. During Ayuttaya period, 1350-1767, there are some documents of French missionary health station and treatment from this period. After the moving of the capital to Bangkok in 1782, Thai traditional medical practice continued. Around 1820, the inscription of Thai medical practice was done during the reign of King Rama III at Wat Rajaoros, and in 1831 at Wat Prachetupol in Bangkok. The reentry of missionaries during King Rama III brought back the influence of Western medicine. Dr. Dan Beach Bradley was a famous missionary doctor during the reign of King Rama III and IV. He lived in Bangkok from 1835-1873. He was well known from giving first smallpox vaccination. He brought in new surgical technique to Thailand. He also started the first printing company in Thailand. He also printed Treatise on Midwifery in Thai. Until April 1888, the first Thai hospital, Siriraj Hospital, was founded during the reign of King Rama V (Garanpong (จรัล เกร์นพงษ์), 1982). The list of hospital built in Thailand between 1880 and 1978 is as in the **Table 2**.

Table 2: List of hospitals in Thailand from 1880-1978(Garanpong (จรัล เก้านพงษ์), 1982)

No.	Name	Name in Thai	Year built	
1	Missionary Hospital, Pethchaburi	โรงพยาบาลของมิชชันนารี เพชรบุรี	1880	2423
2	Siriraj Hospital	โรงพยาบาลศิริราช	1888	2431
3	McCormick Hospital	โรงพยาบาลแมคคอร์มิค	1888	2431
4	Somdetchaopraya Hospital	โรงพยาบาลเสด็จวิจิตร (สมเด็จพระเจ้าพระยา)	1889	2432
5	Burapa Hospital	โรงพยาบาลบูรพา	1889	2432
6	Dhebsirn Hospital	โรงพยาบาลเทพศิรินทร์	1889	2432
7	Navy Hospital Wat Rakang	โรงพยาบาลทหารเรือ วัดระฆัง	1890	2433
8	Bangrak Hospital	โรงพยาบาลบางรัก	1893	2436
9	Central Hospital	โรงพยาบาลหญิงหาเงิน (โรงพยาบาลกลาง 2458)	1897	2440
10	Bangkok Nursing Home Hospital	โรงพยาบาลบางกอกเนิสซิงโฮม	1898	2441
11	Saint Louis Hospital	โรงพยาบาลเซนต์หลุยส์	1898	2441
12	Somedet na Sriraja Hospital	โรงพยาบาลสมเด็จพระศรีราชา	1902	2445
13	Taksin Hospital	โรงพยาบาลตากสิน	1904	2447
14	Mission hospital, Phitsanuklol	โรงพยาบาลมิชชัน พิษณุโลก	1906	2449
15	Sikhabiban Phuket Hospital	โรงพยาบาลสุขาภิบาลภูเก็ต	1906	2449
16	Mission hospital, Nakhon Si Thamart	โรงพยาบาลมิชชัน นครศรีธรรมราช	1909	2452
17	Nakhonratsima Hospital	โรงพยาบาลนครราชสีมา	1909	2452
18	Sabbawut Navy Hospital	โรงพยาบาลสรรพาวุธทหารเรือ	1910	2453
19	Vachirapayabal Hospital	โรงพยาบาลวชิรพยาบาล	1912	2455
20	Lerdsin Hospital	โรงพยาบาลบางรัก(เลิศสิน)	1913	2456
21	Christian Hospital, Prae	โรงพยาบาลคริสเตียน ประจวบ	1913	2456
22	Mission Hospital, Tabteang, Trang	โรงพยาบาลมิชชัน ตำบลเตียง ตรัง	1913	2456

No.	Name	Name in Thai	Year built	
24	Chulalongkorn Hospital	โรงพยาบาลจุฬาลงกรณ์	1914	2457
25	Vachiraphuket Hospital	โรงพยาบาลวชิรภูเก็ต	1916	2459
26	Over Brooke Hospital, Chiangrai	โรงพยาบาลโอเวอร์บรูค เชียงราย	1918	2461
27	Cholburi Hospital	โรงพยาบาลชลบุรี	1919	2462
28	Pethchburi Hospital	โรงพยาบาลเพชรบุรี	1920	2463
29	Leprosy Hospital Nakhon Si Thammarat	โรงพยาบาลโรคเรื้อน นครศรีธรรมราช	1922	2465
30	Leprosy Hospital Prabadang	โรงพยาบาลโรคเรื้อนพระประแดง	2023	2566
31	Songkla Hospital	โรงพยาบาลสงขลา	1925	2468
32	Kalasin Hospital	โรงพยาบาลกาฬสินธุ์	1931	2474
33	Sawanpracharak Hospital	โรงพยาบาลสวรรคภ์ประชารักษ์	1931	2474
34	Srisakate Hospital	โรงพยาบาลศรีสะเกษ	1934	2477
35	Nonhkai Hospital	โรงพยาบาลหนองคาย	1935	2478
36	Sappasithprasong Hospital	โรงพยาบาลสรรพสิทธิ์ประสงค์อุบลราชธานี	1936	2479
37	King Mongkut Hospital	กองเสนารักษ์ (โรงพยาบาลพระมงกุฎเกล้า)	1936	2479
38	Anansamahidol Hospital	โรงพยาบาลอานันทมหิดล ลพบุรี	1936	2479
39	Nakhonpanom Hospital	โรงพยาบาลนครพนม	1937	2480
40	Chiangriaprachanukra Hospital	โรงพยาบาลเชียงรายประชานุเคราะห์	1937	2480
41	Saranrom Hospital	โรงพยาบาลสราญรมย์ สุราษฎร์ธานี	1937	2480
42	Pattani Hospital	โรงพยาบาลปัตตานี	1937	2480
43	Prapokklao Hospital	โรงพยาบาลพระปกเกล้า จันทบุรี	1938	2481
44	Abhakorn Hospital	โรงพยาบาลทหารเรือสัตหีบ (โรงพยาบาลอากาศอภัยวิวัฒน์)	1939	2482
45	Lampang Hospital	โรงพยาบาลลำปาง	1939	2482

No.	Name	Name in Thai	Year built	
46	Prabuddhachinaraj Hospital	โรงพยาบาลพระพุทธชินราช พิษณุโลก	1939	2482
47	Abhayabhuesr Hospital	โรงพยาบาลเจ้าพระยาอภัยภูเบศร์	1941	2484
48	Ro-et Hospital	โรงพยาบาลร้อยเอ็ด	1941	2484
49	Rajaburi Hospital	โรงพยาบาลราชบุรี	1941	2484
50	Sritanya Hospital	โรงพยาบาลศรีสัญญา	1941	2484
51	Sangka Hospital	โรงพยาบาลสงฆ์	1941	2484
52	Chest Hospital	โรงพยาบาลโรคทรวงอก นนทบุรี	1941	2484
53	Chaoprayayomarat Hospital	โรงพยาบาลเจ้าพระยามรราช	1942	2485
54	Tak Hospital	โรงพยาบาลตาก	1943	2486
55	Maharakam Hospital	โรงพยาบาลมหาสารคาม	1947	2490
56	North Mental Hospital	โรงพยาบาลโรคจิตภาคเหนือ	1947	2490
57	Suanprung Hospital	โรงพยาบาลสวนปรุง เชียงใหม่	1947	2490
58	Srimahabho Hospital	โรงพยาบาลพระศรีมหาโพธิ์ อุบลราชธานี	1947	2490
59	Srisangvorn Hospital	โรงพยาบาลศรีสังวร	1948	2491
60	Bhumibol Adulyadej Hospital	โรงพยาบาลทหารอากาศ(โรงพยาบาลภูมิพลอดุลยเดช)	1949	2492
61	Prabuddhalerdla Hospital	โรงพยาบาลสมเด็จพระพุทธเลิศหล้า	1949	2492
62	Lerdsin Hospital	โรงพยาบาลเลิศสิน	1949	2492
63	Yala Hospital	โรงพยาบาลยะลา	1949	2492
64	Bamratnaradol Hospital	โรงพยาบาลบำราศนราดูร (โรงพยาบาลโรคติดต่อพญาไท ถนนดินแดง)	1949	2492
65	Chaseagchao Hospital	โรงพยาบาลฉะเชิงเทรา	1950	2493
66	Samutprakarn Hospital	โรงพยาบาลสมุทรปราการ	1950	2493
67	Uthaitanee Hospital	โรงพยาบาลอุทัยธานี	1950	2493
68	Cholapraton Hospital	โรงพยาบาลชลประทาน นนทบุรี	1950	2493
69	Surin Hospital	โรงพยาบาลสุรินทร์	1951	2494
70	Trang Hospital	โรงพยาบาลตรัง	1951	2494
71	Maharakram	โรงพยาบาลมหาสารคาม	1951	2494
72	Rayong Hospital	โรงพยาบาลระยอง	1951	2494

No.	Name	Name in Thai	Year built	
73	Khonkan Hospital	โรงพยาบาลขอนแก่น	1951	2494
74	Uttaradit Hospital	โรงพยาบาลอุดรดิตต์	1951	2494
75	Petchburi Hospital	โรงพยาบาลเพชรบุรี	1951	2494
76	Ranong Hospital	โรงพยาบาลระนอง	1951	2494
77	Rajavithi Hospital	โรงพยาบาลราชวิถี	1951	2494
78	Narathiwat Hospital	โรงพยาบาลนราธิวาสราชนครินทร์	1952	2495
79	Police Hospital	โรงพยาบาลตำรวจ	1952	2495
80	Tak Hospital	โรงพยาบาลตาก	1952	2495
81	Nakhonprathom Hospital	โรงพยาบาลเมืองนครปฐม	1952	2495
82	Potharam Hospital	โรงพยาบาลโพธาราม ราชบุรี	1952	2495
83	Railway Hospital	โรงพยาบาลรถไฟ มักกะสัน	1952	2495
84	Chaiyabhum Hospital	โรงพยาบาลชัยภูมิ	1953	2496
85	Buriram Hospital	โรงพยาบาลบุรีรัมย์	1953	2496
86	Sakolnakhon Hospital	โรงพยาบาลสกลนคร	1953	2496
87	Lampoon Hospital	โรงพยาบาลลำพูน	1953	2496
88	Petchabul Hospital	โรงพยาบาลเพชรบูรณ์	1953	2496
89	Pichit Hospital	โรงพยาบาลพิจิตร	1953	2496
90	Payolpolpayuhasena Hospital	โรงพยาบาลพลพยุหเสนา กาญจนบุรี	1953	2496
91	Maharat Hospital Nakhon Si Thammarat	โรงพยาบาลมหาราช นครศรีธรรมราช	1953	2496
92	Chomporn Hospital	โรงพยาบาลชุมพรเขตรอุดมศักดิ์	1953	2496
93	Suratthani Hospital	โรงพยาบาลสุราษฎร์ธานี	1953	2496
94	Satun Hospital	โรงพยาบาลสตูล	1953	2496
95	Sakolnakhon Hospital	โรงพยาบาลสกลนคร	1953	2496
96	Saraburi Hospital	โรงพยาบาลสระบุรี	1954	2497

No.	Name	Name in Thai	Year built	
97	Nakhonnayok Hospital	โรงพยาบาลนครนายก	1954	2497
98	Udonn Hospital	โรงพยาบาลอุดรธานี	1954	2497
99	Kampangpetch Hospital	โรงพยาบาลกำแพงเพชร	1954	2497
100	Pangnga Hospital	โรงพยาบาลพังงา	1954	2497
101	Singhburi Hospital	โรงพยาบาลสิงห์บุรี	1955	2498
102	Aungthong Hospital	โรงพยาบาลอ่างทอง	1955	2498
103	Prae Hospital	โรงพยาบาลแพร่	1955	2498
104	Prachaukirikan Hospital	โรงพยาบาลประจวบคีรีขันธ์	1955	2498
105	Pattalung Hospital	โรงพยาบาลพัทลุง	1955	2498
106	Lonburi Hospital	โรงพยาบาลลพบุรี	1956	2499
107	Prabhuddapat Sraburi Hospital	โรงพยาบาลพระพุทธบาท สระบุรี	1956	2499
108	Chainat Hospital	โรงพยาบาลชัยนาท	1956	2499
109	Nan Hospital	โรงพยาบาลน่าน	1956	2499
110	Nonthaburi Hospital	โรงพยาบาลนนทบุรี	1957	2500
111	Prasart Hospital	โรงพยาบาลประสาท พญาไท	1957	2500
112	New Pangnga Hospital	โรงพยาบาลพังงา (ใหม่)	1958	2501
113	Baanmi Hospital	โรงพยาบาลบ้านหมี่	1959	2502
114	Chaingmai Medical School Hospital	โรงพยาบาลคณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่	1959	2502
115	Ramadhibodi Hospital	โรงพยาบาลรามธิบดี	1969	2512
116	Songklanakarinn Hospital	โรงพยาบาลสงขลานครินทร์	1973	2516
117	Khonkan University Hospital	โรงพยาบาลศรีนครินทร์ มหาวิทยาลัยขอนแก่น	1978	2521

Chapter 3

Review on Heritage Protection and Heritage Conservation Protocols

ICOMOS (the International Council on Monuments and Sites) is a non-government organization with headquarters in Paris, France. Founded in 1965, its role is to promote the application of theory, methodology and scientific techniques to the conservation of the architectural and archaeological heritage. One of its principal contribution is to conservation practice is the 1964 International Charter on the Conservation and Restoration of Monuments and Sites, the Venice Charter, focused mainly on ancient monuments and buildings, which represented a narrow scope of conservation in that period. On conservation, the Venice Charter emphasized mainly on physical fabric rather than social meanings (Taylor, 2004).

The World Heritage Committee of UNESCO

The operational guideline for the implement of the world heritage convention (WHC. 08/01 January 2008) contained the following definitions ("Operational guidelines for the implementation of the world heritage convention," January 2008):

A definition of World Heritage Cultural and Natural Heritage

The World Heritage Committee of UNESCO defined both cultural and natural heritage, the following shall be considered as "cultural heritage":

- **Monuments:** architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science.

- **Groups of buildings:** groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science.

- **Sites:** works of man or the combined works of nature and of man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological points of view.

The World Heritage Committee of UNESCO encourages and supports a variety of ongoing and proposed uses that are ecologically and culturally sustainable. The State Party and partners must ensure that such sustainable use does not

adversely impact the outstanding universal value, integrity and/or authenticity of the property. Furthermore, any uses should be ecologically and culturally sustainable.

The Burra Charter (The Australia ICOMOS charter for places of cultural significance) ("The Burra Charter ", 1999)

The Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19th August 1979 at Burra, South Australia. Revisions were adopted on 23rd February 1981, 23rd April 1988 and 26th November 1999.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members. It emphasized the importance of **Cultural Significance**, and development of Conservation Policy. It introduced the term "place" to define cultural heritage resources. It said that the interpretation should be a part of Conservation Policy (Taylor, 2004). Although it emphasized the four different kinds of value, it did not emphasize much on intangible conservation nor authenticity.

Definitions The Burra Charter defined some of the important terms in the Charter:

1.1 **Place** means site, areas, building or other work, group of buildings or other works together with associated contents and surrounds.

1.2 **Cultural significance** means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

1.3 **Conservation** means all the processes of looking after a place so as to retain its cultural significance.

1.4 **Maintenance** means the continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction.

1.5 **Preservation** means maintaining the fabric of a place in its existing state and retarding deterioration.

1.6 **Restoration** means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

1.7 **Reconstruction** means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric.

1.8 **Adaptation** means modifying a place to suit the existing use or a proposed use.

1.9 **Use** means the functions of a place, as well as the activities and practices that may occur at the place.

1.10 **Compatible use** means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

The concept of cultural significance

In the Burra Charter cultural significance means aesthetic, historic, scientific or social value for past, present or future generations. Cultural significance is a concept which helps in estimating the value of places. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations. Various aspects of cultural significance in the Burra Charter are as the followings:

Aesthetic value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric, the smells and sounds associated with the place and its use.

Historic value

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section.

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information.

Social value

Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group.

The establishment of cultural significance

In establishing the cultural significance of a place, the Burra Charter recommends that it is necessary to assess all the information relevant to an understanding of the place and its fabric. The task includes a report comprising written material and graphic material. The contents of the report should be arranged to suit the place and the limitations on the task, but it will generally be in two sections: the assessment of cultural significance and, the statement of cultural significance.

For data collection the Burra Charter recommends to collect all Information relevant to the assessment of cultural significance. Such information concerns:

- (a) the developmental sequence of the place and its relationship to the surviving fabric;
- (b) the existence and nature of lost or obliterated fabric;
- (c) the rarity and/or technical interest of all or any part of the place;
- (d) the functions of the place and its parts;
- (e) the relationship of the place and its parts with its setting;
- (f) the cultural influences which have affected the form and fabric of the place;
- (g) the significance of the place to people who use or have used the place, or descendants of such people;
- (h) the historical content of the place with particular reference to the ways in which its fabric has been influenced by historical forces or has itself influenced the course of history;
- (i) the scientific or research potential of the place;
- (j) the relationship of the place to other places, for example, in respect of design, technology, use, locality or origin;
- (k) any other factor relevant to an understanding of the place.

The Xi'an declaration on the conservation of the setting of heritage structures, sites and areas("Xi'an declaration on the conservation of the setting of heritage structures, sites and areas," October 2005)

The Xi'an declaration addressed on:

1. Acknowledge the contribution of setting to the significance of heritage monuments, sites and areas.
2. Understand, document and interpret the settings in diverse contexts.
3. Develop planning tools and practices to conserve and manage settings
4. Monitor and manage change affecting settings.

5. Work with local, interdisciplinary and international communities for co-operation and awareness in conserving and managing settings.

The Xi'an declaration addressed understanding, documenting, and interpretation of heritage monuments. It does not address much the issues of authenticity.

The Hoi An Protocols for Best Conservation Practice in Asia

The Hoi An Protocols for Best Conservation Practice in Asia Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia(UNESCO, 2009). Bangkok: UNESCO Bangkok, 2009. (Appendix A)

In the Hoi An protocols for best conservation practice in Asia, there are five site specific methodologies for Asia listed:

1. Cultural landscapes
2. Archaeological sites
3. Underwater cultural heritage sites
4. Historical urban sites, and heritage groups
5. Monuments, buildings, and structures

According to the Hoi An Protocols, Siriraj Hospital site fits best with the "Monuments, buildings, and structures" conservation practice category.

The issue of significance and authenticity in the Hoi An Protocols(UNESCO, 2009)

Authenticity: It comes from the Greek *authentēs*, meaning author, and in its earliest uses, its connotations were original, genuine, first-hand(Matero, 2006). In a 1994 the Nara document on authenticity ("The Nara document on authenticity," 1994) was issued. Authenticity was the main focus of the Nara Document. It also acknowledged the need to respect cultural diversity and all aspects of belief system. The Authenticity in Nara Document is defined in terms of form and design, material and substance, use and function, traditions, techniques and management systems, location and setting, language, and other forms of intangible heritage, and spirit and feeling(Taylor, 2004). It also stated the variety of information resources of authenticity.

In Asia, the issue of authenticity created a lot of controversies when the conservation processes just imitated the conservation plan from Western society. In Principles for the Conservation of Heritage Sites in China, the issue of authenticity was mentioned many times for the meaning of authenticity in Chinese perspective. Authenticity was explicitly discussed and explained in a clear detail in the Hoi An Protocols. The various aspects of authenticity were also thoroughly addressed

(UNESCO, 2009) including location and setting, form and design, use and function, and essence. Various sources of information to justify authenticity were also addressed in detail.

Authenticity is usually understood in terms of a matrix of dimensions of authenticity: of location and setting; form; materials and design; use and function; and “immaterial” or essential qualities. Together these form the composite authenticity from which significance derives. The retention of authenticity is the aim of good conservation practice.

The cultural significance of heritage sites has been defined by the Burra Charter ("The Burra Charter ", 1999) as the “aesthetic, historic, scientific, social or spiritual value for past, present or future generations” which is “embodied in the place itself, its setting, use, associations, meanings, records, related places and related objects.” The goal of conservation is to preserve this significance by ensuring that all interventions and actions meet the test of authenticity in all respects.

Understanding the relative degree of significance of heritage resources is essential if we are to rationally determine which elements must be preserved under any circumstance, which should be preserved under some circumstances and which, under exceptional circumstances, will be sacrificed. Degree of significance can be assessed on the basis of the representativeness, rarity, condition, completeness and integrity and interpretive potential of a resource.

Assessment of the significance of a place, site or monument should be carried out as a necessary preliminary to any conservation action. Significance assessment is the process of studying and understanding the meanings and values of places, objects and collections. It involves three main steps: firstly, analyzing the object or resource; secondly, understanding its history and context; and thirdly, identifying its value for the communities which created and/or care for it.

The key to the process is the concept of authenticity which has become the universal concern of the conservation profession since the adoption of the 1972 UNESCO World Heritage Convention, which defines authenticity as the primary and essential condition of the heritage. The 1994 Nara Document on Authenticity("The Nara document on authenticity," 1994) reaffirms this by stating that authenticity “appears as the essential qualifying factor concerning values.”

Dimensions of authenticity is systematically mentioned in the Hoi An Protocols (UNESCO, 2009) (**Table 3**):

Table 3: Dimensions of authenticity mentioned in the Hoi An Protocols

Dimension of Authenticity				
Aspects	Location and Setting	Form and design	Use and Function	Immaterial Qualities
	Place	Spatial layout	Use(s)	Artistic expression
	Setting	Design	User(s)	Values
	Sense of place	Materials	Associations	Spirit
	Environment niches	Crafts	Changes in the use over time	Emotional impact
	Landforms and vistas	Building techniques	Spatial distribution of usage	Religious context
	Environns	Engineering	Impacts of use	Historical associations
	Living elements	Stratigraphy	Use as a response to environment	Sounds, smells, and tastes
	Degree of dependence on locale	Linkages with other properties or sites	Use as a response to historical context	Creative process

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The sources of information on authenticity (UNESCO, 2009)

Beside the dimensions of authenticity, the Hoi An Protocols also emphasized on the various sources of information for authenticity as shows in

Table 4:

Table 4: Sources of Information on Authenticity in the Hoi An Protocols

Sources of Information on Authenticity					
Primary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
Place	Oral histories	Traditional indigenous knowledge	Period artwork	Ethnographic records	Spatial integrity
Primary documents [land deeds, census records etc.]	Religious context	Archaeological investigations	Contemporary literature	Ethnographic collections	Degree of Continuity of use
Inscriptions	Socio-economic survey of current users	Geophysical survey	Dated samples of materials and styles	Experimental studies	Socio-cultural context
Genealogies ancestral records	Demographic data	Remote sensing imaging	Traditional crafts manuals and building guides		Environmental
Historical Photos	Records of clan, neighborhood and other groups	Geometrical survey and photogrammetry	Patina		Trauma
Historical maps					
Secondary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
Chronologies	Analysis of continuity of use, occupation	Quantitative and statistical analysis	Artistic commentaries and reviews	Interpretative studies	Surrounding spaces
Travelers' accounts	Studies of craft organization	Laboratory Analysis Dating methods	Stylistic analysis	Application of models such as nearest neighbor analysis	Political context
Histories and commentaries	Analysis of political consensus	Materials analysis	Study of Comparative sites and resources	Studies of cultural antecedents	Economic
Diaries, correspondence	Social commentaries	Engineering and structural studies			Context of technological change
		Mathematical modeling			

The Nara Document on Authenticity stresses that in order to understand the authentic heritage values of a place we must employ credible and truthful sources of information. The Nara Document on Authenticity ("The Nara document on authenticity," 1994) states that "all judgments about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgments of values and authenticity within fixed criteria. On the contrary, the respect due to all cultures requires that heritage properties must be considered and judged within the cultural contexts to which they belong", "Therefore, it is of the highest importance and urgency that, within each culture, recognition be accorded to the specific nature of its heritage values and the credibility and truthfulness of related information sources."

A truthful source is not only a written record, but information or sources of information such as an archaeological excavation and the information it can provide, or wall paintings that show details of the life and technology of a certain period and area.

Credible sources of authenticity include, for example, a continuous craft tradition handed down generation by generation, an unbroken oral tradition, a ritual of which the practice is in the hands of hereditary specialists (i.e. a ritual in which the knowledge and skills are transmitted from the specialist only to his/her child).

Authenticity is measured by the credibility and truthfulness of the information/documentation on which the judgment is made. The following sources of information form the basis of a check-list which should be consulted to ensure that conservation practices preserve the authenticity of all these aspects of heritage resources.

Authenticity of an intangible cultural heritage (UNESCO, 2009)

In addition to the issue of the authenticity of the tangible cultural heritage, the authenticity of an intangible cultural heritage has been also emphasized in the Hoi An Protocols. The immaterial dimension of authenticity (e.g. artistic expression, values, spirit, emotional impact, religious context, historical associations, sounds, smells and tastes and creative process) and sources of information about them are particularly important in regard to maintaining authenticity of cultural heritage in Asia. Tangible cultural expressions of cultural heritage have their origins in the expression of intangible culture. We need to look for the expressions of intangible cultural heritage to guide us towards preserving the tangible heritage.

The congruence between the material and immaterial dimensions of authenticity lies in their continuity. In the best conservation practice, the practitioner's objective should be to provide the form of stewardship for the resource that best ensures the continuity and long-term sustainability of all authentic attributes of the resource, be they material or immaterial.

In my opinion, assessment and management of authenticity could create a lot of conflicts among different agencies depended on the criteria and sources of information of authenticity, especially for the intangible heritage. However the issues on authenticity were clearly and thoroughly addressed in The Hoi An Protocol. The Hoi An Protocols' authenticity brought up the critical aspect of conservation, and it also gave a clear direction for authenticity assessment which depended on various sources of information. That meant we need cooperation from multiple sources for multiple aspects of authenticity and value.

Since the Hoi An protocols strongly addressed on issues of authenticity and sources of information on authenticity. It also clearly addressed both on authenticities of both tangible and intangible aspect of the cultural heritage. Different dimensions of authenticity and their sources of information were clearly documented. Issues on minority culture, education, buffer zone and site management were clearly addressed. In this study, I mainly used the Hoi An Protocols as a reference for conservation practice because it stressed on issue of authenticity both in tangible and intangible aspects.

Overview of heritage conservation in Thailand

There is no current Thai Charter or Protocol in conservation practice specific for Thailand's context at the current moment, however the draft of Thailand Charter is currently developed by the Thai ICOMOS ("ICOMOS Thailand," 2011). The Thai ICOMOS was founded in April 1985 by an agreement of the cabinet. The Thai ICOMOS had participated in multiple international meetings, for example, in the meeting for Charter on the Built Vernacular Heritage in 1997, which later endorsed

in 1999 in Mexico ("ICOMOS Thailand," 2011). The Thai ICOMOS also participated in the development of the Hoi An Protocols for Best Conservation Practice in Asia which the final document released in 2009 in Bangkok (UNESCO, 2009).

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Chapter 4

History of Evolution and Change at Siriraj Hospital

Basic information of Siriraj Hospital: Basic information from the annual report 2010 (*Annual Report 2010 Faculty of Medicine Siriraj Hospital Mahidol University, 2011*) is as the followings:

Site: Siriraj Hospital

General description: General Hospital, Medical School

Location: Siriraj Hospital 2 Prannok Road, Bangkoknoi, Bangkok 10700 Thailand

Date of construction: 26th April 1888

Owner: Mahidol University

Staff: 10,496

Physicians: 1,753

Students: 2,030

Patients: Outpatient 10,795/day, Inpatient 2,194/day

Visitors: 15,000 /day

Budget: 17,741,000,000 Baht/year (2010)

Map of Siriraj Hospital:



Figure 15: Siriraj Hospital map

(Source: Map from 120 Memorabilia of Siriraj. Faculty of Medicine Siriraj Hospital Mahidol University. Bangkok: Plan Printing Co., Ltd.; 2009) (*120 Memorabilia of Siriraj*, 2009)

Patient Service

A1	Pediatrics Building
A2	Kosol Kantabutra Building
A3	Chudhadhuj Building
A4	72 nd Anniversary Building
A5	HRH Princess Mahachakri Building
A6	Chalermprakieat Building
A7	Lady Vijitra Building
A8	Siam Commercial Bank Building
A9	84th Anniversary Building
A10	Pa-ob Nop Supatra Building
A11	OPD Building
A12	Pra Sucharitsuda Building
A13	Mahidolvaranussorn Building
A14	Somdech Prasrinagarindra Centennial Building
A15	Vibulaksama Building
A16	Srisangwan Building
A17	Srisangwan Annex Building
A18	Her Majesty Cardiac Center
A19	Syamindra Building
A20	Lottery Building
A21	Pava-Harischandra Building
A22	Nursing Dormitory II Building
A23	Asdang Building
A24	Anandamahidol Building
A25	Trauma Building

Dormitory

B1	Male Medical Student Dormitory II
B2	Prachatipatai Dormitory
B3	Female Medical Student Dormitory II
B4	Nurse Dormitory I
B5	Nurse Dormitory III
B6	Nurse Dormitory IV
B7	Resident Physician Dormitory
B8	Mahitarakarn (Male Medical Student) Dormitory

Administration

C1	Laundry Building
C2	Water Treatment Building
C3	Water Treatment Plant
C4	Pumping Station
C5	Water Purification Plant
C6	Electric Sub Station
C7	Sterile Supply Building
C8	Nutrition Building
C9	Environment Conservation Building
C10	Garden and Public Work
C11	Storehouse

Education

D1	Anatomy Building
D2	Microbiology Building
D3	Srisawarindira Building
D4	Adulyadejvikrom Building
D5	Faculty of Medical Technology
D6	Faculty of Nursing Building
D7	Prasripatcharindra Building
D8	Prasrinagarindra Building
D9	Obstetrics and Gynecology Building
D10	Siriraj Medical Library
D11	Mahidol University Voluntary Club

Support

E1	Old OPD Building
E2	Mahidolbampen Building
E3	Cafeteria
E4	Nuclear Medicine Research Building
E5	Siriraj Centennial Hall
E6	Tennis Court
E7	Siriraj Medical Alumni Association Building
E8	Rajapattayalai Auditorium Building
E9	Car Park I Building
E10	Anandaraj Building
E11	The Main Administrative Building
E12	Car Park II and Siriraj Gymnasium Building
E13	Memorial Service Hall
E14	Mahidol University Saving and Credit Co. Building
E15	Siriraj Pier
E16	Prannok Pier
E17	Railway Pier



Figure 16: Siriraj Hospital from the Google Maps
 (Source: Image from Google Maps, April 3, 2012 ("Google Maps," 2012))

- 1) The main Administrative Building
- 2) Siriraj Pier
- 3) The Old OPD Building
- 4) Rajapattayalai Auditorium
- 5) Asdang Building
- 6) Somdech Prasrinagarindra Centennial Building
- 7) 72nd Anniversary Building
- 8) OPD Building
- 9) Chalermprakieat Building
- 10) Sayamindra Building
- 11) 84th Anniversary Building
- 12) Sisawarindira Building
- 13) Adulyadejvikrom Building
- 14) Excellence Medical Center

Orientation:

Siriraj Hospital is located in the heart historical and commercial district of Bangkoknoi (little Bangkok), on the west bank of Chaopraya River, in Bangkoknoi County, Bangkok, Thailand. The total area of the hospital was 110 Rais (~44 acres). The hospital complex presently consisted of 78 buildings, including buildings for patient service, doctors and nurse dormitories, academic buildings, and other buildings for support division. The hospital is on her 124th anniversary, in 2012. The hospital is on an expansion by building an international Center of Medical Excellence on the land next to Siriraj Hospital, another 33 rais (~13.2 acres), used to belong to the State Railway Of Thailand and used as Bangkoknoi railway station, next to Bangkoknoi Canal. The Center of Medical Excellence was officially opened on the 124th anniversary of Siriraj Hospital, April 26, 2012. The total area of the Siriraj Hospital at the present is 143 rais or 57.2 acres.

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Figure 17: Statue of Prince Mahidol, the King's father. The Father of Thai modern Medicine, Siriraj Hospital

(Source: Photo from *(Administrative Achievements 2001-2004 Faculty of Medicine Siriraj Hospital Mahidol University, 2005)*)



Figure 18: Siriraj Pier, the oldest building in the hospital

(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)

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Figure 19: Siriraj Hospital 2012, form the junction of Chaopraya River and Bangkoknoi Canal

(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)



Figure 20: Siriraj Hospital from Chaopraya River

(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)

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Figure 21: Siriraj Hospital

(Source: Photo from , Siriraj Hospital Archives (Insuan, 2011))



Figure 22: Siriraj Hospital, view from Asdang building
(Source: Photo from , Siriraj Hospital Archives (Insuan, 2011))



Figure 23: Siriraj Hospital, Prince Mahidol statue
(Source: Photo from , Siriraj Hospital Archives (Insuan, 2011))

Development sequence plans of Siriraj Hospital

The following plans demonstrates the development of Siriraj Hospital from 1888-2010 (120 Memorabilia of Siriraj, 2009; Insuan, 2011).

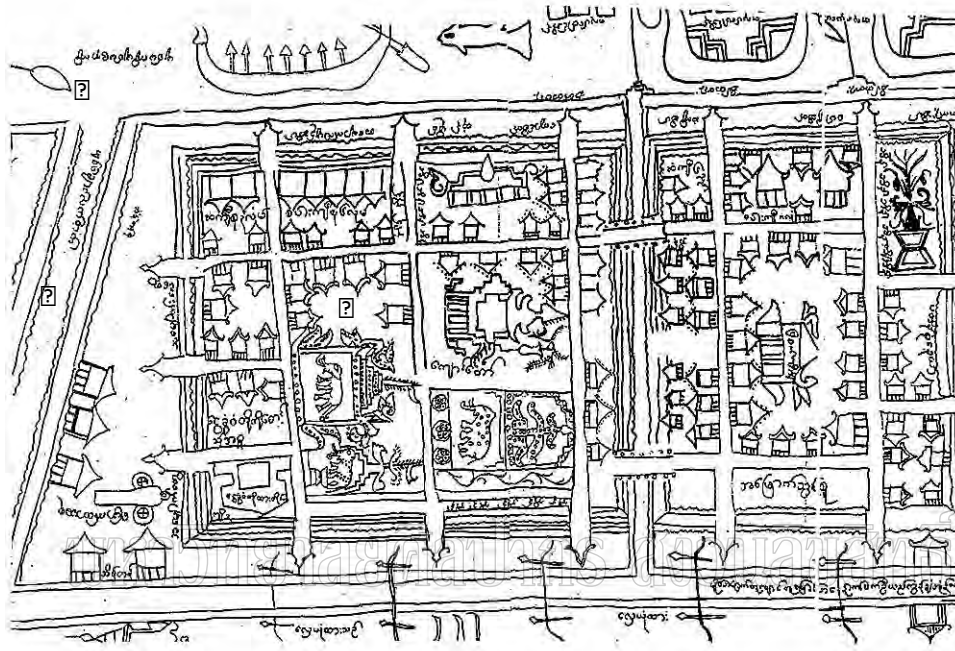


Figure 24: Plan of the area of Siriraj Hospital around 1782, Thonburi period, by a Burmese drawer

(Source: Map from, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ Chaopraya River ☐ Bangkoknoi Canal ☐ area of the future Hospital in 1782

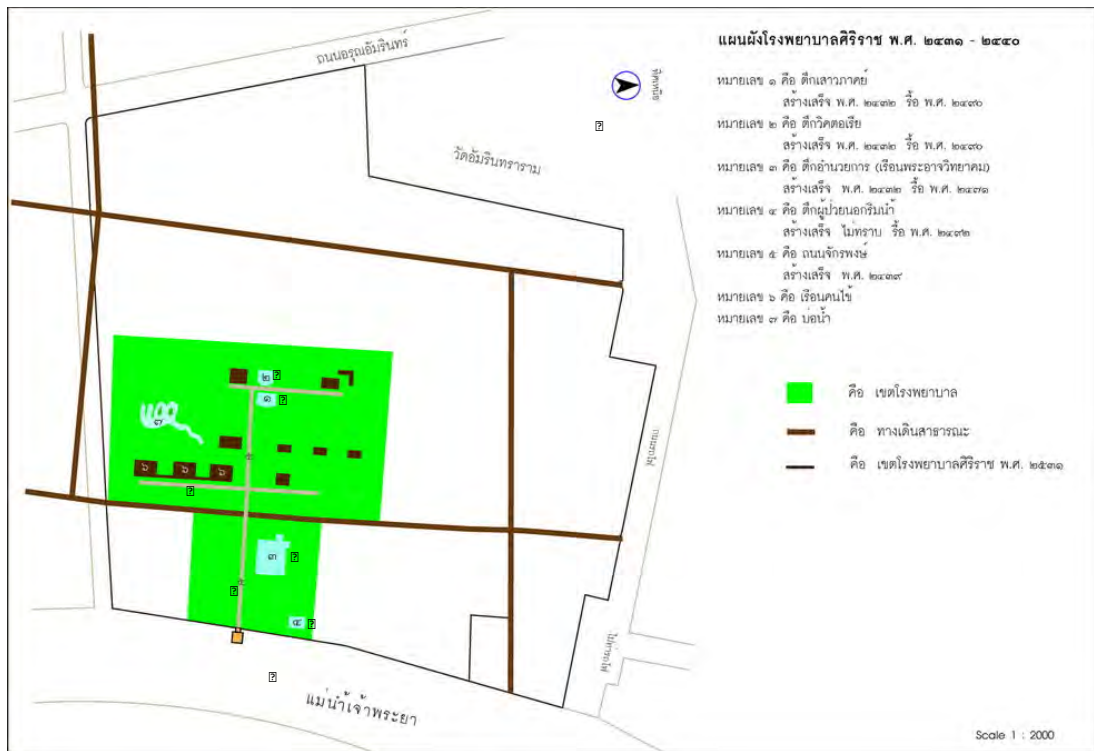


Figure 25: Development of Siriraj Hospital, 1888-1897

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

□ Soawapak building □ Victoria building □ Prof. McFarland's residence, the main
 Administrative building □ the Old OPD building □ Chakrabonse road
 □ wooded patient pavilions □ Chaopraya River □ Amarintraram temple
 The green area is the area of Siriraj Hospital during that time.

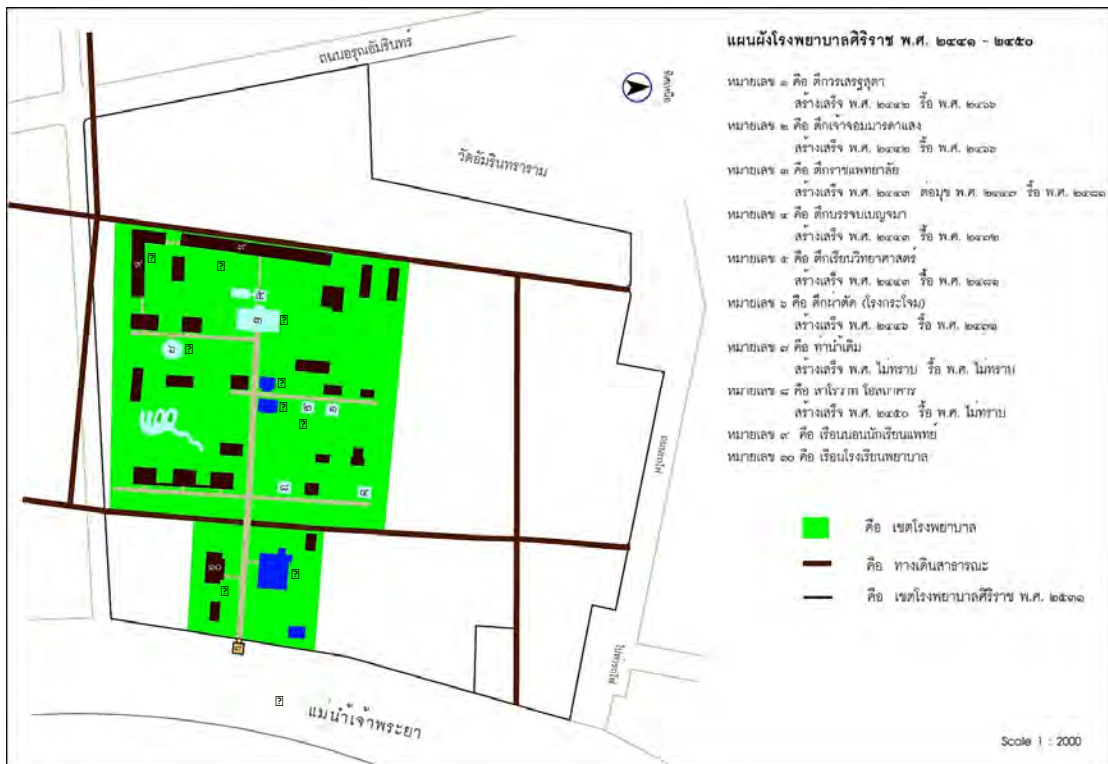


Figure 26: Development of Siriraj Hospital, 1898-1907

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Royal Medical College building ☐ Octagonal Operation Theater building
- ☐ Victoria building ☐ Soawapak building ☐ Sang ward ☐ Prof. McFarland’s residence ☐ Nursing School building ☐ Medical Student Dormitories
- ☐ Chaopraya River

The green area is the area of Siriraj Hospital during that time.

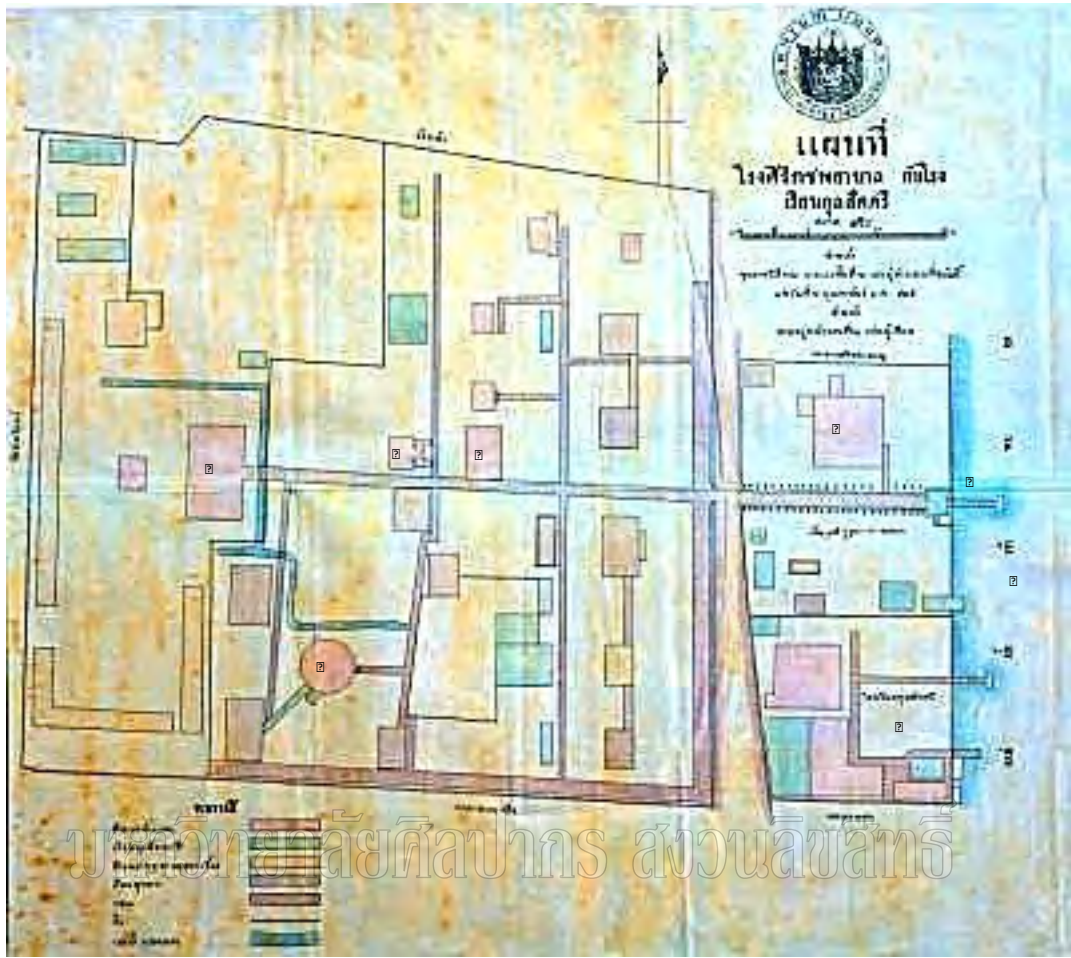


Figure 27: Development of Siriraj Hospital, 1906. Wattana Wittaya Academy, a girl school, at that time was not part of the hospital. Until 1921, Prince Mahidol bought the land from the school to make a nurse dormitory
(Source: Map from, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Royal Medical College building ☐ Octagonal Operation Theater building
- ☐ Victoria building ☐ Soawapak building ☐ Prof. McFarland's residence
- ☐ Wattana Wittaya Girl Academy ☐ Siriraj Pier ☐ Chaopraya River



Figure 28: Development of Siriraj Hospital, 1908-1917

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ Royal Medical College building ☐ Octagonal Operation Theater building ☐ Victoria building ☐ Sowapak building ☐ Sang ward ☐ Prof. McFarland's residence ☐ Nursing School building ☐ Medical Student Dormitories

☐ Chaopraya River

The green area is the area of Siriraj Hospital during that time.

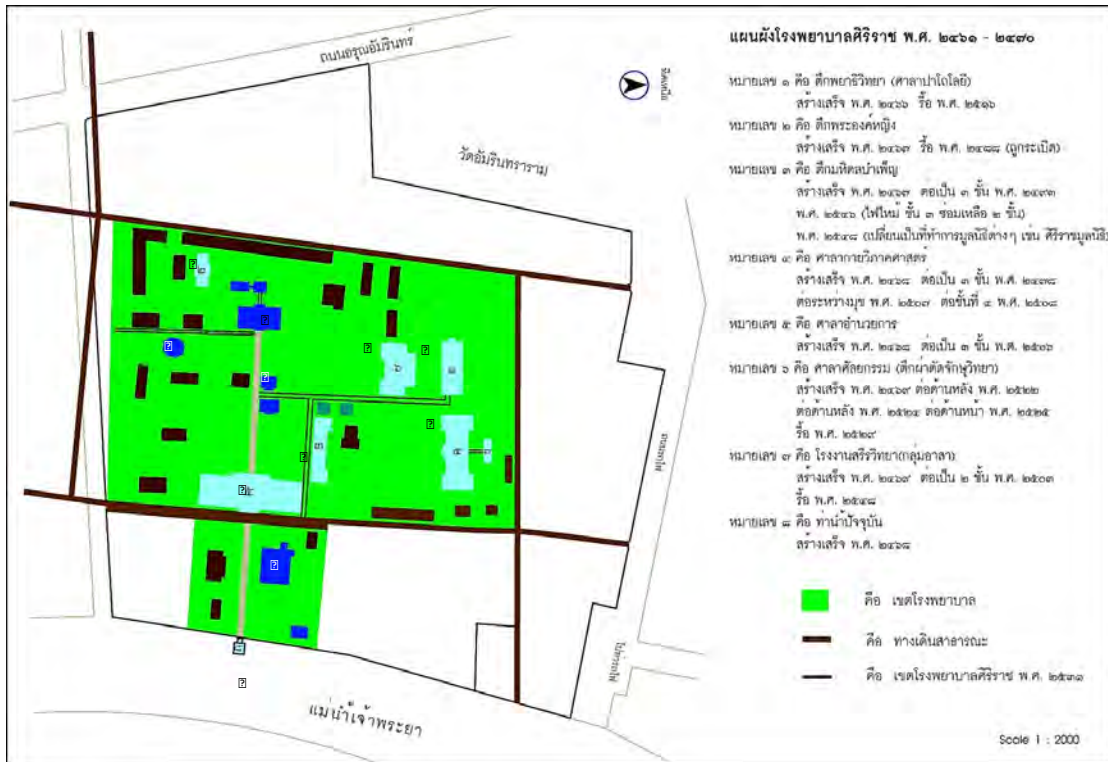


Figure 29: Development of Siriraj Hospital, 1918-1927

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Princess building ☐ The Eye Surgical building ☐ Pathology building
 - ☐ Mahidol-bampen building ☐ Anatomy building ☐ The Main Administrative building ☐
 - Royal Medical College building ☐ Octagonal Operation Theater building
 - ☐ Victoria building ☐ Prof. McFarland’s residence ☐ Chaopraya River
- The green area is the area of Siriraj Hospital during that time.

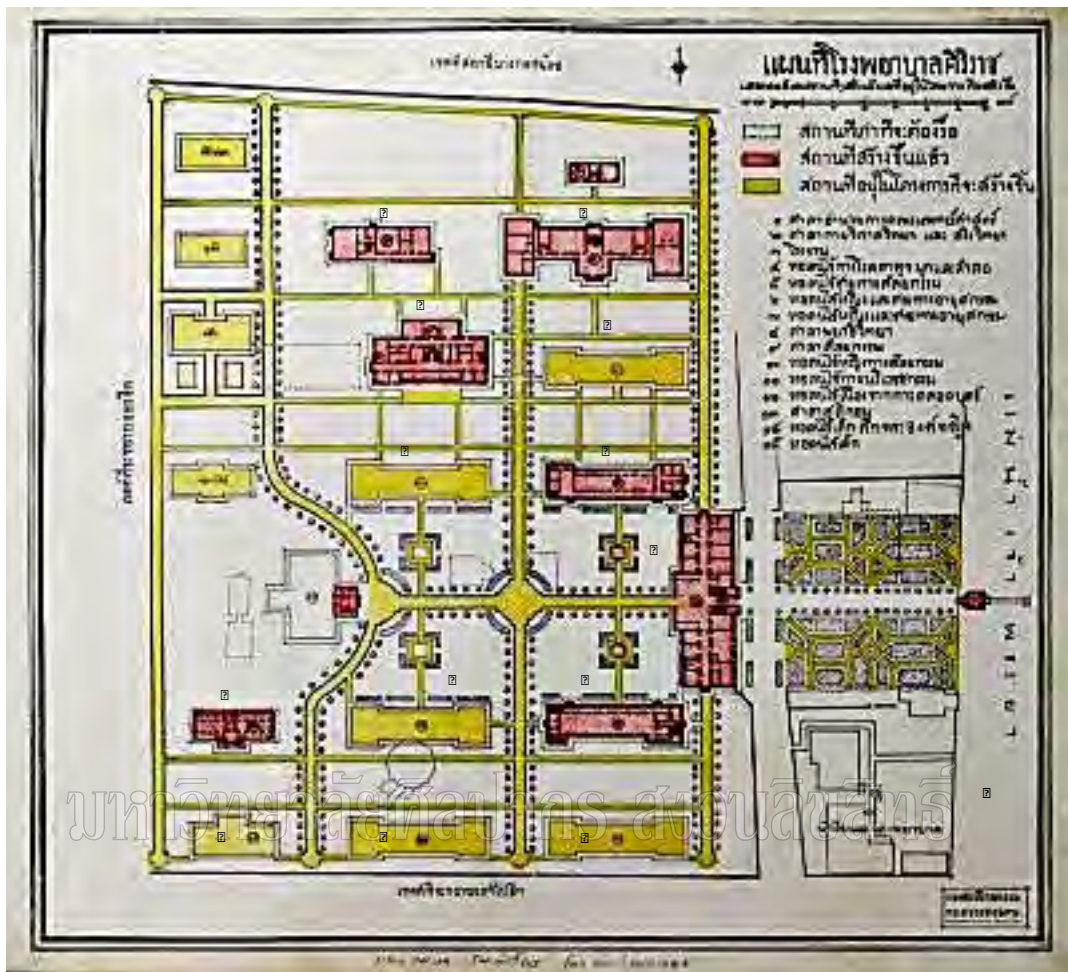


Figure 30: Development of Siriraj Hospital, 1923-1935, during the Rockefeller foundation support, 22 new buildings were built in this period (Source: Map from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology building ☐ Anatomy building ☐ The Eye Surgical building
- ☐ The Eye building ☐ Female Surgical building ☐ Mahidol-bampen building ☐ The Main Administrative building ☐ Princess building ☐ Treepetch building
- ☐ Asdang building ☐ Kao-Thai-Utit building ☐ Chudhadhuj building
- ☐ Mahidolvaranussorn building ☐ Chaopraya Rive

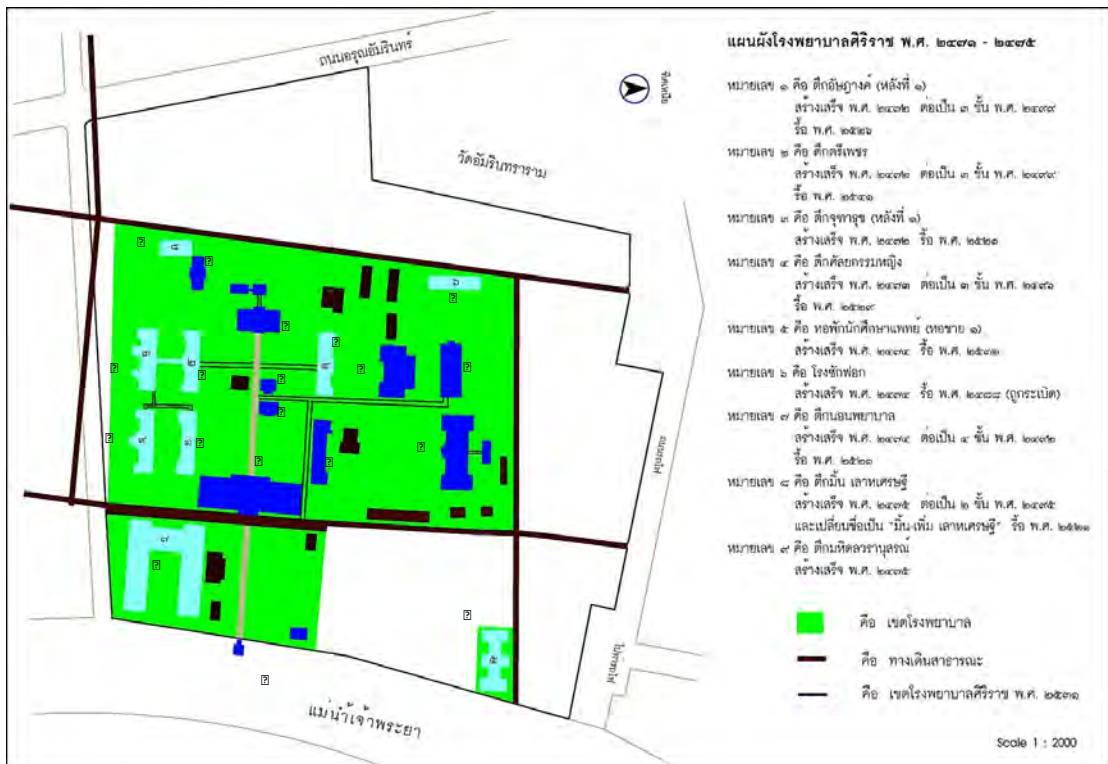


Figure 31: Development of Siriraj Hospital, 1928-1932

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology building ☐ Anatomy building ☐ The Eye Surgical building
 - ☐ Laundry building ☐ Female Surgical building ☐ Mahidol-bampen building ☐ The Main Administrative building ☐ Soawapak building ☐ Victoria building
 - ☐ Royal Medical College building ☐ Princess building ☐ Mint Laohasetthi building ☐ Chudhadhuj building ☐ Treepetch building
 - ☐ Mahidolvaranussorn building ☐ Asdang building ☐ Nurse Dormitory building
 - ☐ Male Medical Student Dormitory building ☐ Chaopraya River
- The green area is the area of Siriraj Hospital during that time.



Figure 32: Development of Siriraj Hospital, 1929

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology building ☐ Anatomy building ☐ The Eye Surgical building
- ☐ Laundry building ☐ Mahidol-bampen building ☐ The Main Administrative building ☐
- Soawapak building ☐ Victoria build ☐ Royal Medical College building
- ☐ Treepetch building ☐ Chudhadhuj building ☐ Asdang building
- ☐ Prof. McFarland's residence ☐ Nursing School building ☐ Siriraj Pier
- ☐ Chaopraya River

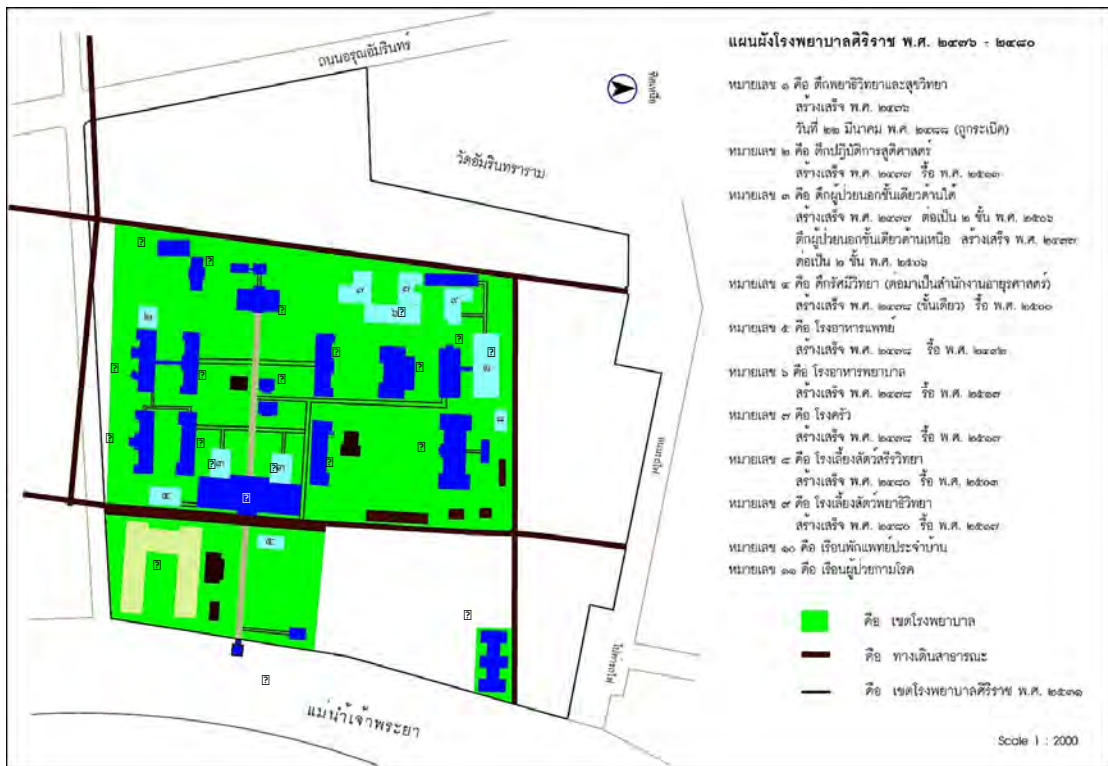


Figure 33: Development of Siriraj Hospital, 1933-1937

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology I building ☐ Anatomy building ☐ The Eye Surgical building
 - ☐ Pathology II building ☐ Female Surgical building ☐ Mahidol-bampen building ☐ The Main Administrative building ☐ OPD buildings ☐ Victoria building
 - ☐ Royal Medical College building ☐ Princess building ☐ Mint Laohasetthi building ☐ Chudhadhuj building ☐ Treepetch building ☐ Mahidolvaranussorn building ☐ Asdang building ☐ Nurse Dormitory building ☐ Male Medical Student Dormitory building ☐ Nurse Cafeteria building ☐ Chaopraya River
- The green area is the area of Siriraj Hospital during that time.



Figure 34: Development of Siriraj Hospital, 1935

(Source: Photo from, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology I building ☐ Anatomy building ☐ The Eye Surgical building
- ☐ Pathology II building ☐ Female Surgical building ☐ Mahidol-bampen building ☐
- The Main Administrative building ☐ OPD buildings ☐ Sowapak building ☐ Victoria
- building ☐ Royal Medical College building ☐ Princess building
- ☐ Mint Laohasetthi building ☐ Treepetch building ☐ Chudhadhuj building
- ☐ Asdang building ☐ Mahidolvaranusorn building ☐ Nurse Dormitory building
- ☐ Male Medical Student Dormitory building ☐ Chaopraya River

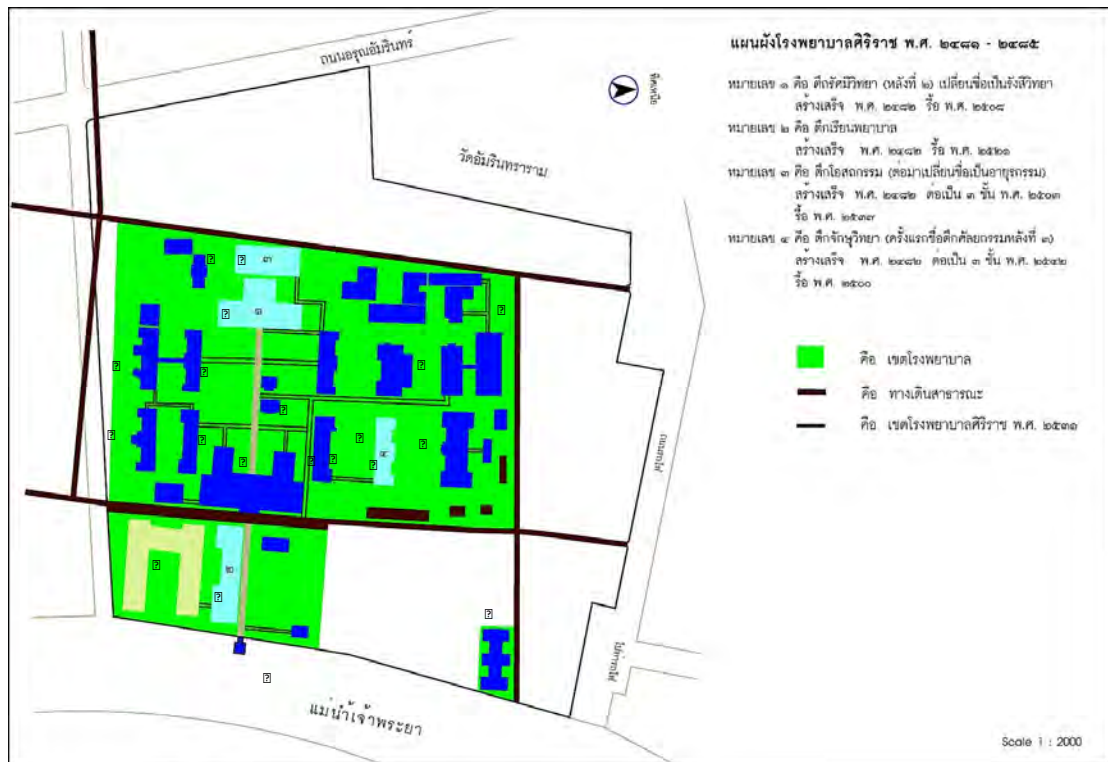


Figure 35: Development Siriraj Hospital, 1938-1942

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology I building ☐ Anatomy building ☐ Internal Medicine building
- ☐ Rasmeevitaya (X-ray II) building ☐ Eye building ☐ Mahidol-bampen building
- ☐ The Main Administrative building ☐ Victoria building ☐ Princess building
- ☐ Treepetch building ☐ Chudhadhuj building ☐ Asdang building
- ☐ Mahidolvaranussorn building ☐ Nurse Dormitory building ☐ Nursing school building
- ☐ Male Medical Student Dormitory building ☐ Chaopraya River

The green area is the area of Siriraj Hospital during that time.



Figure 36: Development of Siriraj Hospital, 1943-1947

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Pathology I building ☐ Anatomy building ☐ Internal Medicine building
 - ☐ Rasmeevitaya (X-ray II) building ☐ Eye building ☐ Mahidol-bampen building
 - ☐ The Main Administrative building ☐ Victoria building ☐ Princess building
 - ☐ Treepetch building ☐ Chudhadhuj building ☐ Asdang building
 - ☐ Mahidolvaranussorn building ☐ Nurse Dormitory building ☐ Nursing school building
 - ☐ Male Medical Student Dormitory building ☐ Chaopraya River
- The green area is the area of Siriraj Hospital during that time.



Figure 37: Development of Siriraj Hospital, 1948-1952

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

□ The Main Administrative building □ Rajapattayalai Auditorium building

The green area is the area of Siriraj Hospital during that time.



Figure 38: Development of Siriraj Hospital, 1948

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Mahidol-bampen building ☐ Eye building
- ☐ Female Surgical building ☐ Eye Surgical building ☐ Rasmeevitaya (X-ray II) building ☐
- Treepetch building ☐ Asdang building ☐ Nurse Dormitory building
- ☐ Nursing school building ☐ Doctor Cafeteria building ☐ Old River-front OPD building
- ☐ Siriraj Pier ☐ Chaopraya River

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Figure 39: Development of Siriraj Hospital, 1952

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building
- ☐ Mahidol-bampen building
- ☐ Anatomy building
- ☐ Pathology I building
- ☐ Eye Surgical building
- ☐ Female Surgical building
- ☐ Rasmeevitaya (X-ray II) building
- ☐ Internal Medicine building
- ☐ Treepetch building
- ☐ Asdang building
- ☐ Nurse Dormitory building
- ☐ Nursing school building
- ☐ Old River-front OPD building
- ☐ Rajapattayalai building
- ☐ Siriraj Pier
- ☐ Chaopraya River

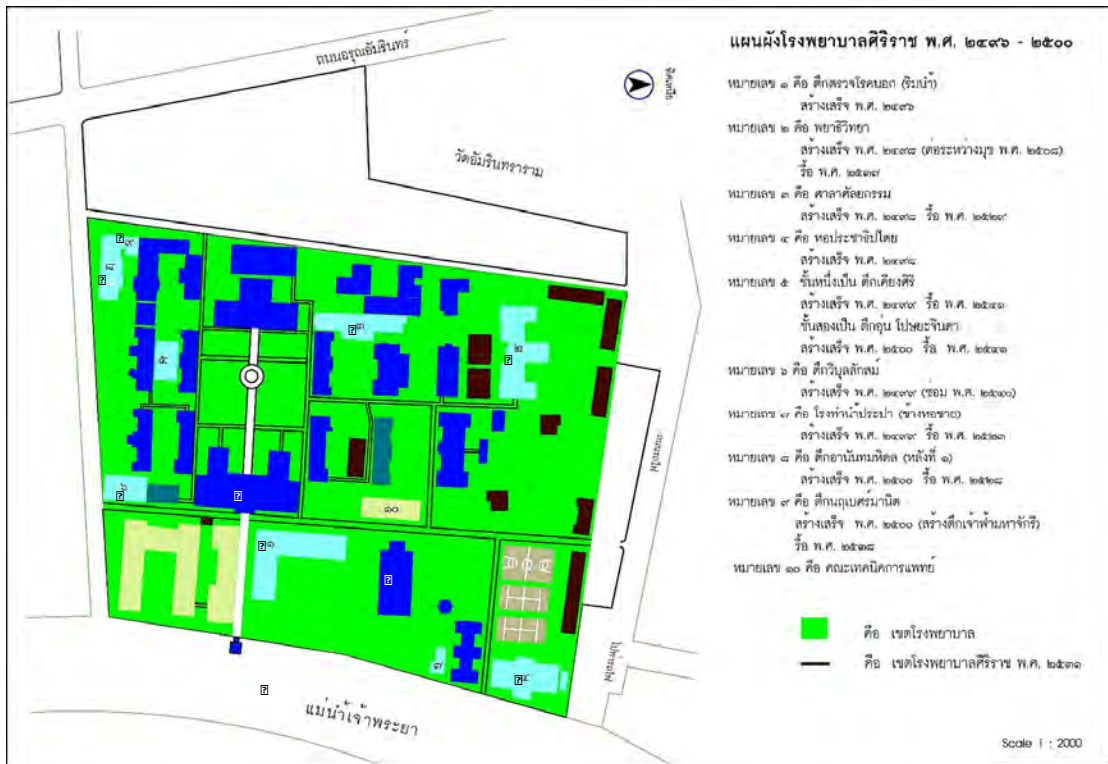


Figure 40: Development of Siriraj Hospital, 1953-1957
 (Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

 The Main Administrative building
 Old OPD building
 Rajapattayalai Auditorium building
 Prachathipatai Dormitory building
 The New Pathology building
 Surgical building
 Anandamahidol building
 Narubesrmanit building
 Vibulaksama building
 Chaopraya River

The green area is the area of Siriraj Hospital during that time.



Figure 41: Development of Siriraj Hospital, 1957

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Nurse Dormitory building ☐ Old OPD building ☐ Siriraj Pier
- ☐ Ratchapattayalai Auditorium building ☐ Male Medical Student Dormitory building ☐
- Wooded Medical Student Dormitories ☐ Anatomy building
- ☐ Pathology building ☐ The Main Administrative building
- ☐ Prince Mahidol statue

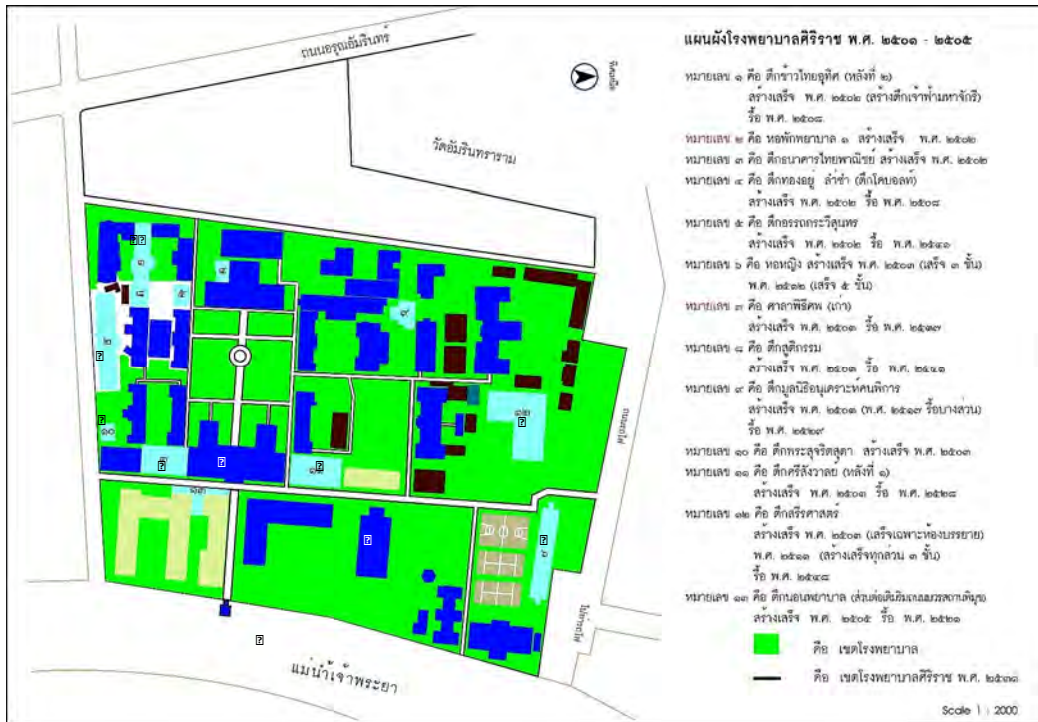


Figure 42: Development of Siriraj Hospital, 1958-1962

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
 - ☐ Physiology building ☐ Female Dormitory building ☐ The New Srisangwan building ☐ Siam Commercial Bank building ☐ Prasucharitsuda building
 - ☐ Nurse Dormitory building ☐ New Kao-Thao-Utit building ☐ Chaopraya River
- The green area is the area of Siriraj Hospital during that time.

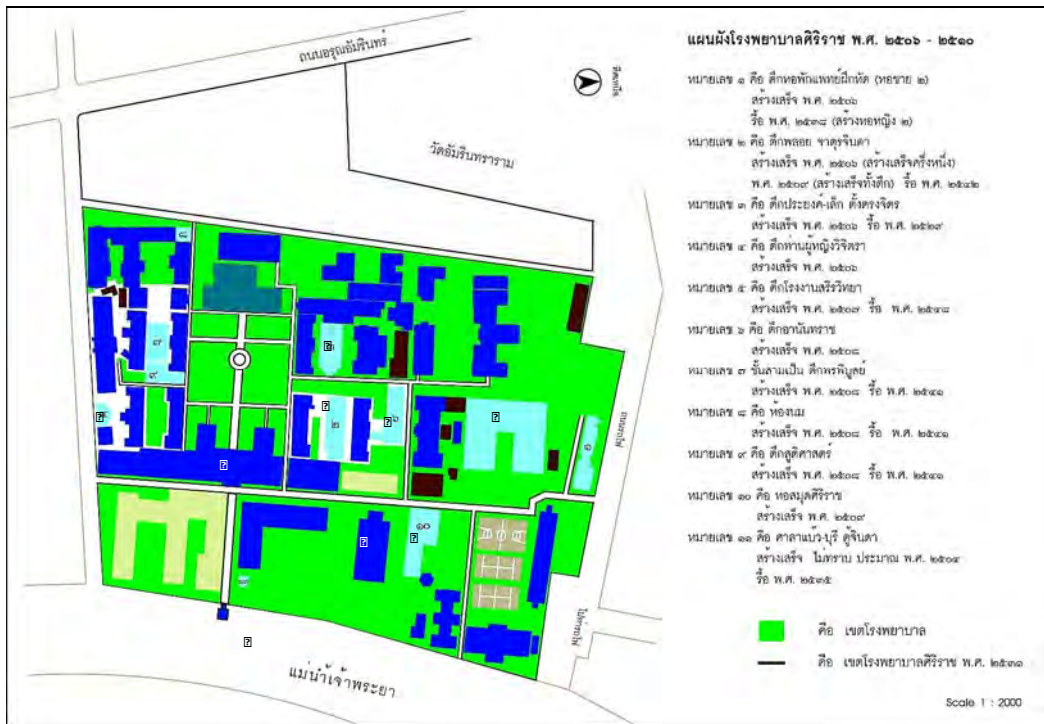


Figure 43: Development of Siriraj Hospital, 1963-1967

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- The Main Administrative building
- Rajapattayalai Auditorium building
- Physiology building
- Anandaraj building
- Ploy Chaturachinda building
- Prayong-Lek Trangtrongchit building
- Lady Wichitra building
- Medical Library building
- Chaopraya River

The green area is the area of Siriraj Hospital during that time.



Figure 44: Development of Siriraj Hospital, 1964

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ Male Medical Student Dormitory building ☐ Anatomy building
 ☐ Pathology building ☐ Prachathipatai Dormitory building ☐ Female Medical Student
 Dormitory building ☐ Physiology building ☐ Rajapattayalai Auditorium building ☐ Old
 OPD building ☐ Chaopraya River

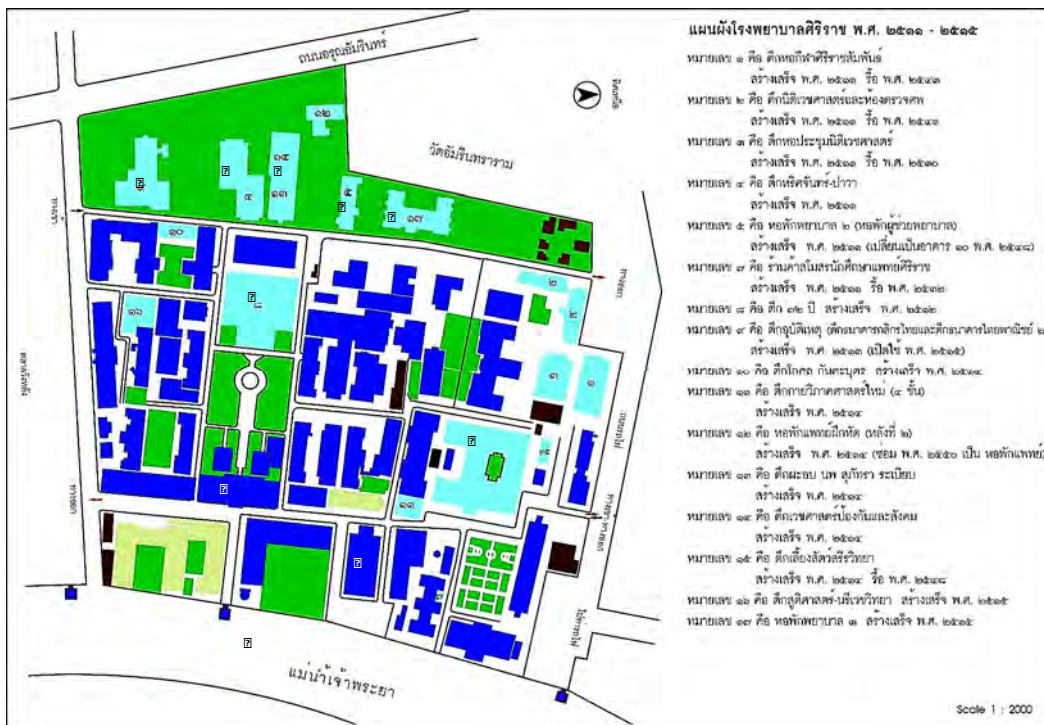


Figure 45: Development of Siriraj Hospital, 1968-1972

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ Physiology building ☐ 72nd Anniversary building ☐ Trauma (SCB and Nakhonluangthai Bank) building ☐ Pawa-Harischandra building ☐ Pa-ob building ☐ Nurse Dormitory II ☐ Nurse Dormitory III ☐ Chaopraya River



Figure 46: Development of Siriraj Hospital, 1971

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ Siriraj Pier ☐ Nurse Dormitory building ☐ 72nd Anniversary building ☐ Old OPD building ☐ Rajapattayalai Auditorium building

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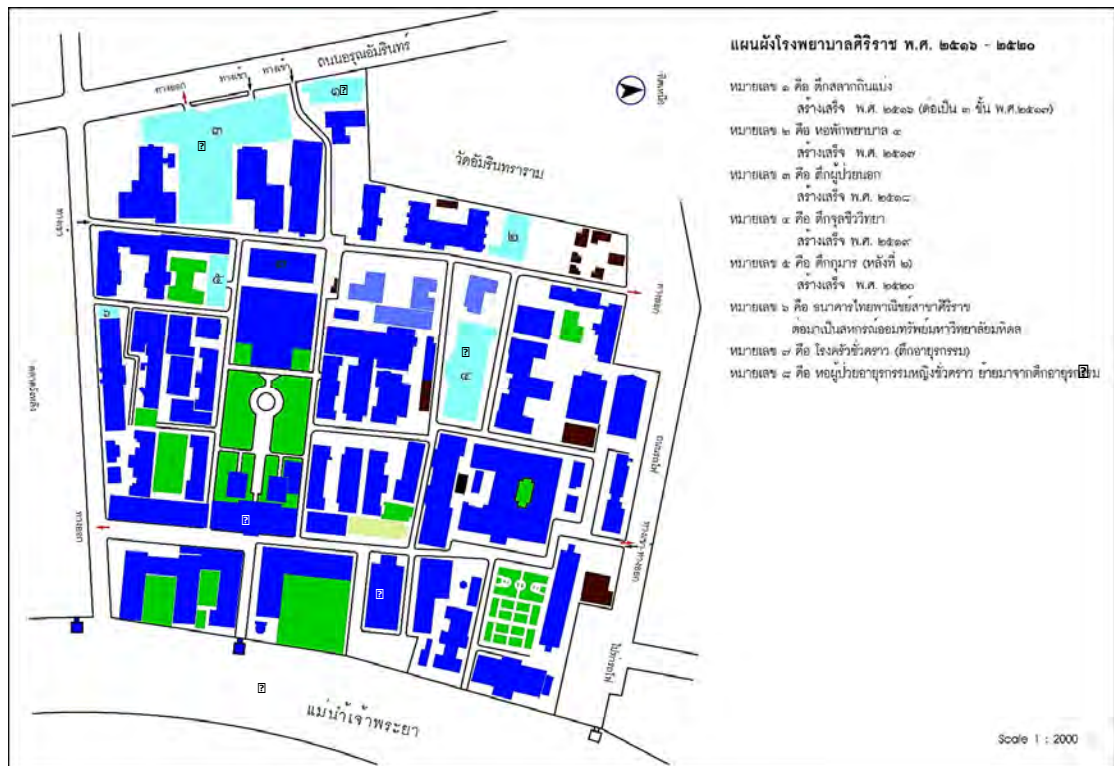


Figure 47: Development of Siriraj Hospital, 1973-1977

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ Microbiology building ☐ New OPD building ☐ Government Lottery building
- ☐ Chaopraya River

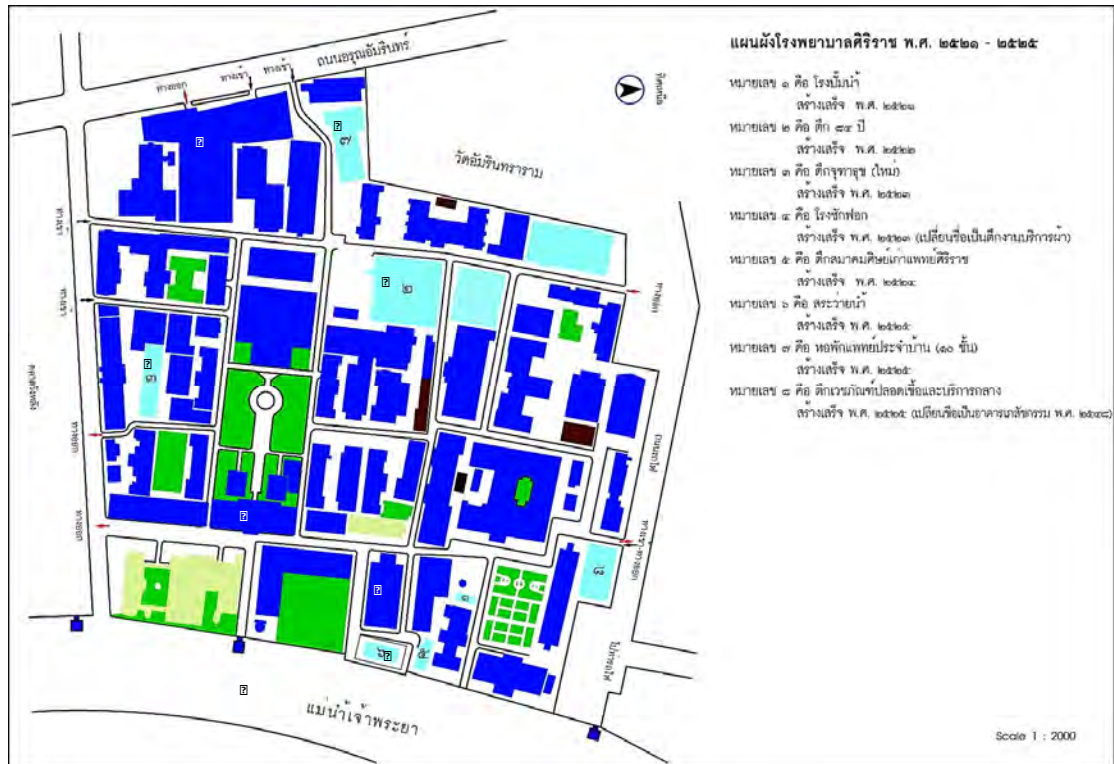


Figure 48: Development of Siriraj Hospital, 1978-1982

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ New OPD building ☐ 84th Anniversary building ☐ New Chudhadhuj building
- ☐ Resident Physician Dormitory ☐ Swimming Pool ☐ Chaopraya River

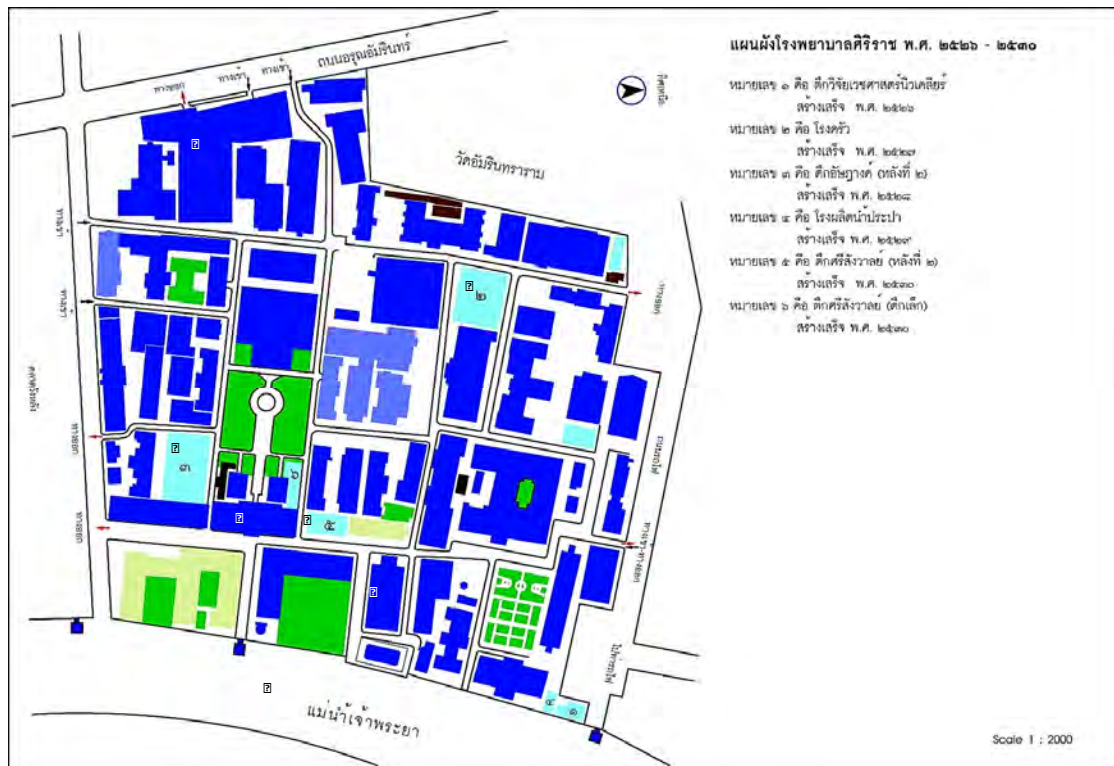


Figure 49: Development of Siriraj Hospital, 1983-1987

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ New OPD building ☐ New Asdang building ☐ Srisangwan II building
- ☐ Kitchen building ☐ Chaopraya River

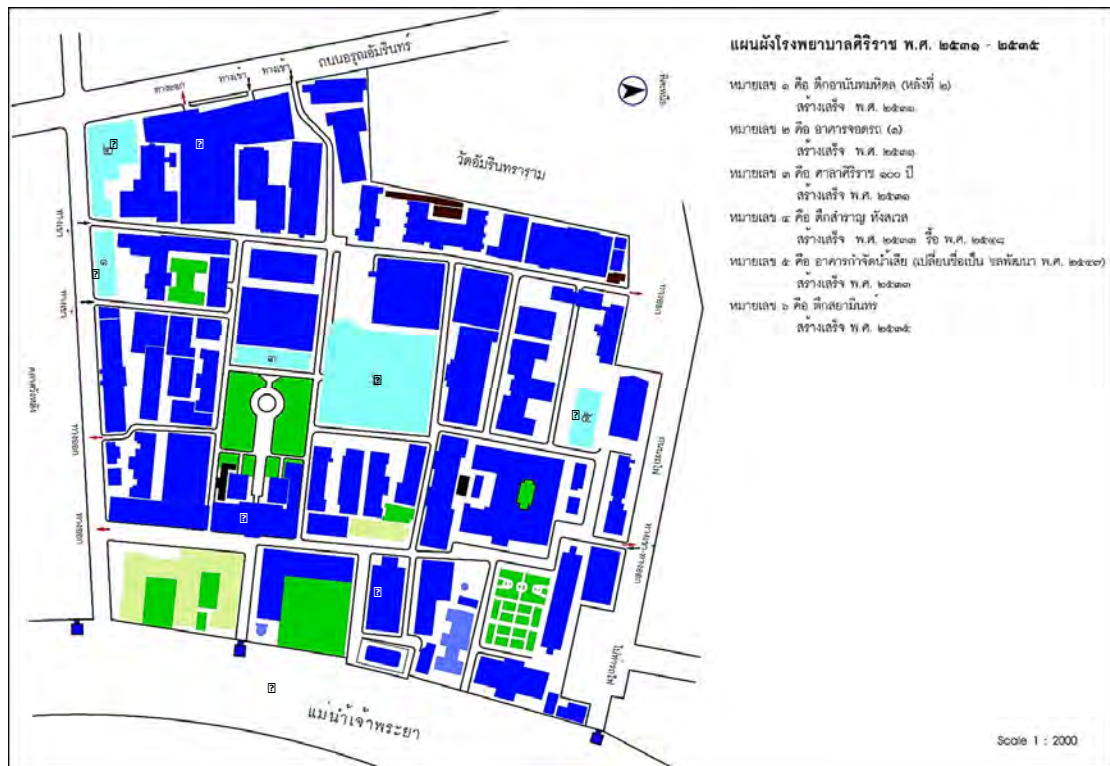


Figure 50: Development of Siriraj Hospital, 1988-1992

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ New OPD building ☐ Car Park building ☐ Anandamahidol II building
- ☐ Syamindra building ☐ Waste water treatment building ☐ Chaopraya River

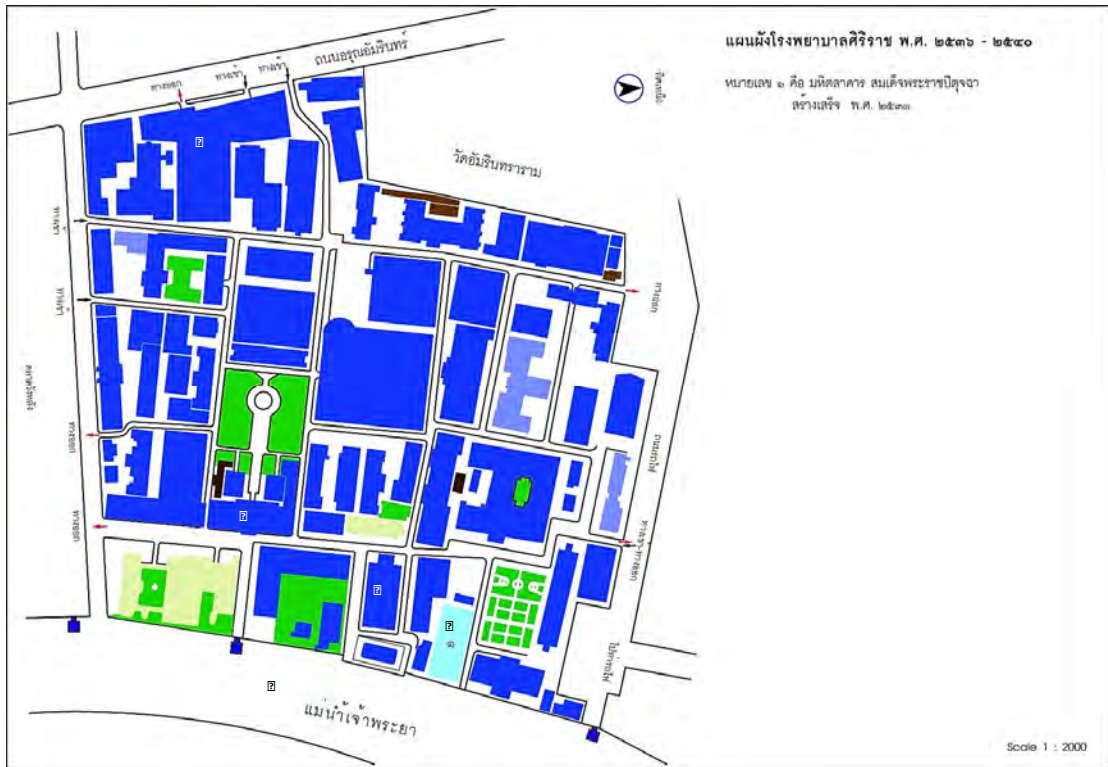


Figure 51: Development of Siriraj Hospital, 1993-1997

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012)) (Insuan, 2011; Insuan & Thammetar, 2012)

- ☐ The Main Administrative building ☐ Rajapattayalai Auditorium building
- ☐ New OPD building ☐ New Male Dormitory (Mahitalakarn) building
- ☐ Chaopraya River

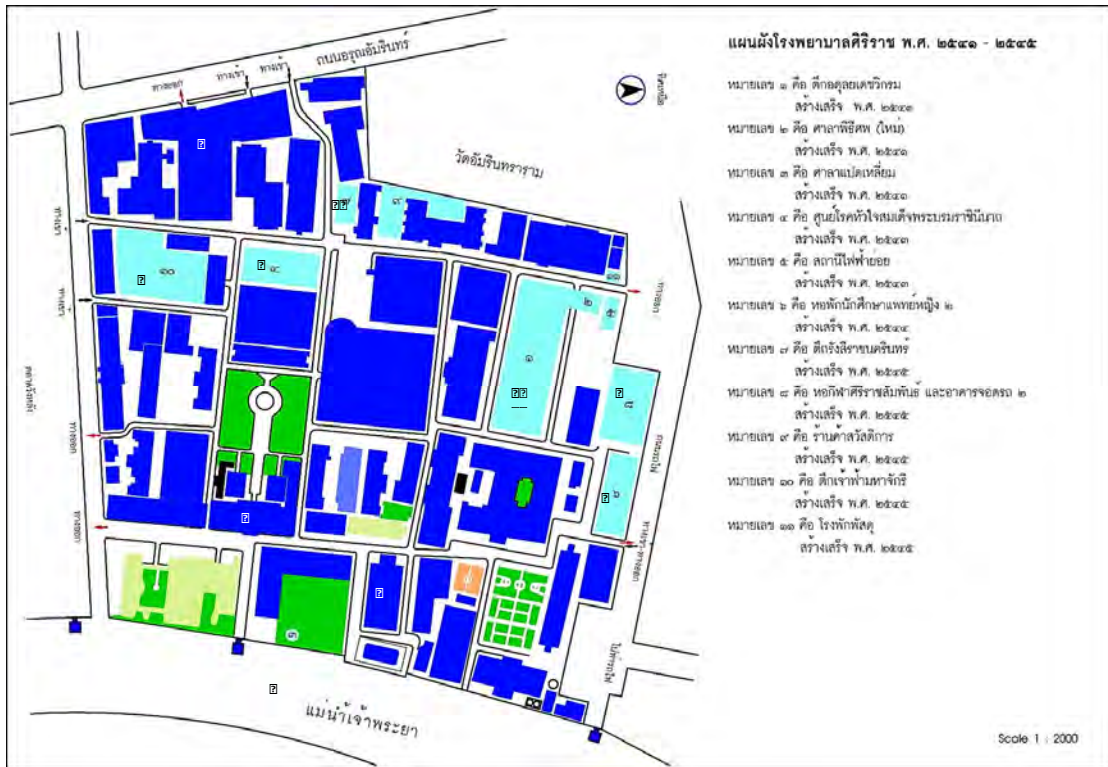


Figure 52: Development of Siriraj Hospital, 1998-2002

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ The Main Administrative building
- ☐ Rajapattayalai Auditorium building
- ☐ New OPD building
- ☐ HRH Princess Mahachakri building
- ☐ Her Majesty Cardiac Center building
- ☐ Rajanakarundra Radiology building
- ☐ Adulayadejvikrom building
- ☐ Car Park II building
- ☐ Female Dormitory II building
- ☐ Chaopraya River

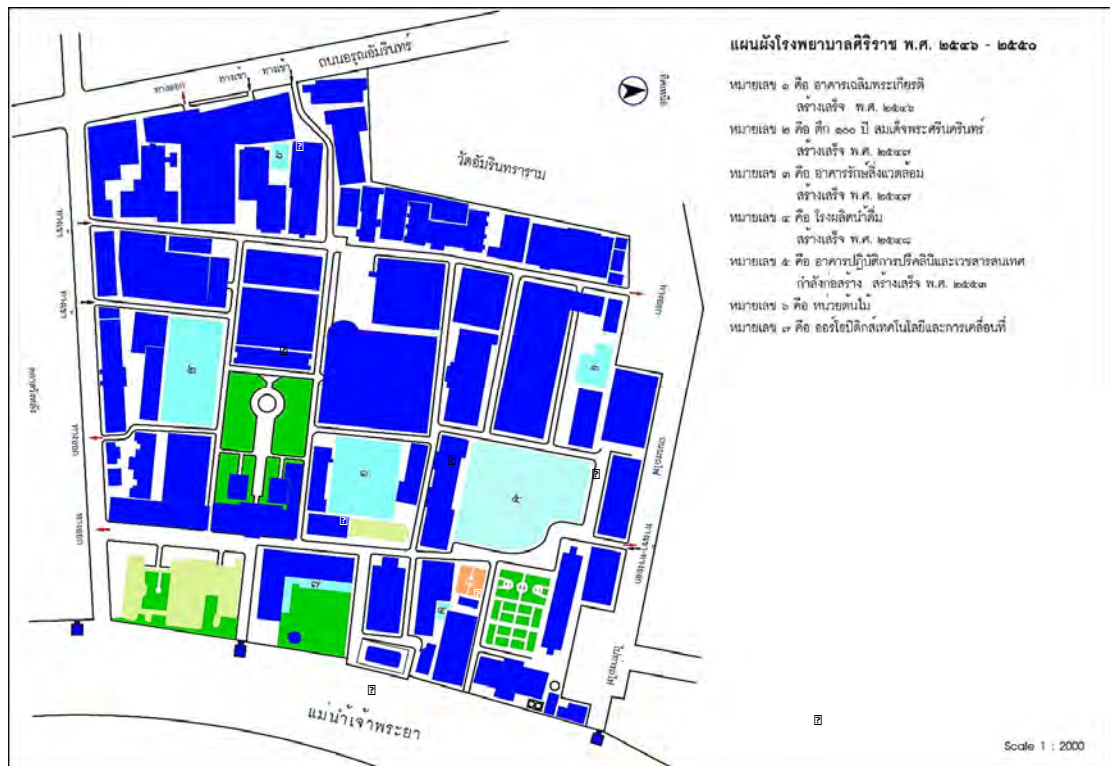


Figure 53: Development of Siriraj Hospital, 2003-2007

(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ๑ The Main Administrative building
- ๒ Rajapattayalai Auditorium building
- ๓ New OPD building
- ๔ Somdech Prasinagarindra Centennial building
- ๕ Chalermprakieat building
- ๖ Srisawarindira building
- ๗ Site for building Center of Medical Excellence
- ๘ Chaopraya River



Figure 54: Development of Siriraj Hospital, 2005

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ School of Nurse building ☐ Siriraj Pier ☐ Asdang building

☐ Old OPD building ☐ Somdech Prasrinagarindra Centennial building

☐ Ratchpattayalai building ☐ Chalermprakieat building ☐ Male Medical Student Dormitory ☐ Prachathipatai Dormitory ☐ Adulyadejvikrom building ☐

Female Medical Student Dormitory ☐ Car Park II building

☐ Chaopraya River



Figure 55: Development of Siriraj Hospital, 2006

(Source: Photo from Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

☐ Somdech Prasrinagarindra Centennial building ☐ Asdang building Siriraj Pier
 ☐ School of Nurse building ☐ Chalermprakieat building ☐ Old OPD building ☐
 Siriraj Pier ☐ Car Park II building ☐ Ratchpattayalai building ☐ Female Medical
 Student Dormitory ☐ Male Medical Student Dormitory ☐ Chaopraya River



Figure 56: Development of Siriraj Hospital, 2012

(Source: Photo by Nantawat Sitdhiraksa 29th February 2012)

๑ School of Nurse building ๒ Old OPD building ๓ Asdang building ๔ Male Medical Student Dormitory ๕ Prachathipatai Dormitory ๖ Chalermprakieat building ๗ Srisawarindira building ๘ Female Medical Student Dormitory ๙ Piyamaharajkarun building ๑๐ His Majesty the King's 80th Birthday Anniversary 5th December 2007 building ๑๑ Siriraj Pier ๑๒ Chaopraya River ๑๓ Bangkoknoi Canal

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์

Heritage background of the site

Siriraj Hospital was the first modern general hospital for the public in Thailand. The hospital was officially opened on April 26th, 1888 by King Rama V. The first four buildings of the hospital were built from the wood that used in cremation ceremonial pavilion for the princes and princesses cremation at the Royal Plaza (Sanam Luang) in front of the Grand Palace. At the beginning the hospital was not very popular, because it was unusual for Thais at that time to come to stay at the hospital for alternative medical treatment.

During the very first year of the hospital, there were only one full-time and one part-time doctor working as attending physicians in the hospital. The first Thai medical school was then founded within a year after the opening of the hospital, partly from shortage of doctors. The medical services at that time were mainly for infectious disease e.g. tuberculosis. The hospital also did health prevention by giving vaccination, and health promotion, for example, promoted modern postpartum care by encouraging mother not staying in a hot sauna-like room for postpartum rehabilitation (U-Fai), which was a long standing popular standard in Thai traditional postpartum care.

On September 5th 2433 (1890), the first modern medical school was officially founded at Siriraj Hospital (Sanvichien, 2010). At first the medical school curriculum was only two years. The medical student studied both western Medicine and the Thai traditional Medicine. The first medical graduation examination was done in 2435 (1892), nine physicians passed the medical examination. In 2447 (1904), the Thai traditional Medicine curriculum and service were drop off from the medical curriculum and medical practice at Siriraj Hospital, from the increasing popularity in modern medicine practice (Garanpong (จรัล เกรัมย์พงษ์), 1982). In 2445, the medical curriculum was extended to four year, in 2454 to be a five-year curriculum, and six-year curriculum in 2461 (Garanpong (จรัล เกรัมย์พงษ์), 1982; Sanvichien, 2010). Currently the medical students are in the 122nd year, there are 326 students in the class of first year medical student.

From 1917-1929, the hospital was mainly under the patronage of Prince Mahidol. The Prince at that time was also the Minister of the Department of University Education. Prince Mahidol improved the standard of medical practice by giving scholarships for studying Medicine and Nursing abroad. He donated fund for medical teaching and research. He bought the land of Wattana Wttayalai Academy, a girl school to build a nursing school and dormitory. He donated fund to build Mahidol Bampen and the Administrative buildings for patient care. He also negotiated with Rockefeller foundation to help Siriraj Hospital for 12 years, from 1923 to 1935, to improve medical education and medical care to the standard of





modern medicine. During the help from Rockefeller foundation, 22 new buildings were added to the hospital (Garanpong (จรัล เกร์นพงษ์), 1982; Insuan, 2011).





The hospital had been through many changes over time, some through the war, some from the advance of medical science and technology, and some to serve the increase in demand of medical services and to serve the need of increasing to supply more physicians to the community and the country. Today the hospital is still on a path of change to adapt to fit with the changing need of the patient, the changing society, and the changing medical practice. There were some conflicts between conserving some parts of the campus and demolishing the old buildings to give way the high-rise medical buildings to fit with the tremendous increasing of patient visits. However, there were challenges in managing the services of the hospital to serve multiple different demands of various customers with different backgrounds and interests. It would be better for the hospital to have a clear and well organized and holistic conservation and service management plan to be able to catch up the demands of the changing society.




Understand the context

Nowadays, Siriraj Hospital became a leading general hospital, tertiary care hospital, and Medical School in Thailand. The hospital had an image of serving the King, the royal family, and the general public. The Hospital had given many landmarks in Thai modern medicine, Thai medical history, and Thai medical identity. Through the past 124 years, 47 hospital buildings have been demolished (**Table 5**) (*120 Years of achievements Faculty of Medicine Siriraj Hospital Mahidol University, 2008*) due to various reasons, for example, effect from the bombarding in WWII, and replacing the old buildings to serve the changing medical services and demands.




Table 5: Listing of buildings in Siriraj Hospital (*120 Memorabilia of Siriraj*, 2009; *120 Years of achievements Faculty of Medicine Siriraj Hospital Mahidol University*, 2008; Insuan, 2011)




No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
1	4 wooded pavilions	เรือนไม้มุงจาก 4 หลัง จุผู้ป่วยได้ 50 คน	Inpatient units	1887	2430	n/a	n/a	
2	Old Siriraj Pier	ศาลาทานาเดิม	Pier	n/a	n/a	1923	2466	
3	Victoria building	ตึกวิคตอเรีย	Inpatient unit	1889	2432	1947	2490	
4	Soawapak building	ตึกเสาวภาคย์	Inpatient, pathology laboratory, lecture room, nursing school, female dormitory	1889	2432	1947	2490	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
5	Prof.McFarland's residence	ตึกพักพระอาจารย์ยาคม	Residential, administrative, pharmacy, dormitory, library	1889	2432	1928	2471	
6	Medical school building	โรงเรียนแพทยากร	Academic building	1893	2436	n/a	n/a	
7	Sang ward	เรือนเจ้าจอมมารดาแสง	Inpatient unit	1889	2442	1903	2466	
8	Worasertsuda building	ตึกวรเสฐสุดา	Inpatient unit	1889	2442	1903	2466	
9	Royal Medical College building	ตึกราชแพทยาลัย	Academic, obstetrics, nurse administration, nursing school	1890	2443	1939	2482	
10	Banjob-Benjama building	ตึกบรรจบเบญจมา	Inpatient unit	1890	2443	1929	2472	
11	Science building	ตึกเรียนวิทยาศาสตร์	Academic	1890	2443	1938	2481	






No .	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
12	Octagonal operation theater building	โรงผ่าตัดกระโจม	Operation theater	1893	2446	1928	2471	
13	Siriraj Pier	ท่าหน้าศิริราช	Pier, reception area of the hospital	1923	2466	-	-	
14	Sarawat Pharmacy building	สาโรชาต โอสถาคาร	Pharmacy	1907	2450	n/a	n/a	
15	Pathology building	ศาลาปาไถโดยี	Pathology laboratory, museum	1923	2466	1973	2516	





No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
16	The Princess building (Sanvichien, 2010)	ตึกพระองค์หญิง	Inpatient pediatric ward (Bombed in WWII (Sanvichien, 2010))	1924	2467	1945	2488	
17	Mahidol-Bampen building	ตึกมหิดลบำเพ็ญ	Surgical inpatient unit, offices of Siraraj's foundation	1924	2467	-	-	
18	The Anatomy building	ศาลากายวิภาคศาสตร์	Academic building, museums	1925	2468	-	-	

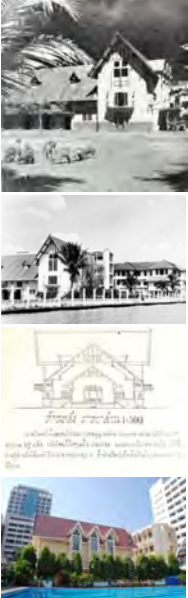

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
19	The main administrative building	ศาลาอำนวยการ	Administration	1925	2468	-	-	
20	The eye surgical building	ศาลาศัลยกรรม	Ophthalmology surgical unit, ophthalmology administrative office	1926	2469	1986	2529	
21	Asdang building	ตึกอัสฆางค์	Internal medicine inpatient unit (replaced by the new Asdang building in 1985)	1929	2472	1983	2526	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
22	Treepetch building	ตึกตรีเพชร	Ob-gynecology inpatient unit	1929	2472	1998	2541	
23	Chudhadhuj building	ตึกจุฑาธุช	Ob-gynecology inpatient unit	1929	2472	1978	2521	
24	Female Surgical building	ตึกศัลยกรรมหญิง	ICU, surgical inpatient unit	1930	2473	1986	2529	





No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
25	Male dormitory	หอพักนักศึกษาแพทย์ (หอชาย 1)	Male medical student dormitory	1931	2474	1989	2532	
26	Nurse dormitory building	ตึกนอนพยาบาล	Nurse dormitory	1931	2474	1978	2521	
27	Laundry building	โรงซักฟอก	Laundry (Bombed in WWII (Sanvichien, 2010))	1931	2474	1945	2488	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
28	Mahidol-varanusorn building	ตึกมหิดลวารานุสรณ์	Private inpatient units, hemodialysis unit	1932	2475	-	-	
29	Mint Laohasetthi building	ตึกมิน เลหาเศรษฐี	Private pediatric inpatient unit	1932	2475	1978	2521	
30	Pathology building II (Sanvichien, 2010)	ตึกพยาธิวิทยาและสุขวิทยา (ตึกปาโถหลัง)	Pathology laboratory, museum (Bombed in WWII (Sanvichien, 2010))	1933	2476	1945	2488	
31	X-ray building	ตึกเอกซเรย์รัศมีวิทยา (สำนักงานอายุรศาสตร์)	X-ray laboratory, Office of Department of Internal Medicine (replaced by Siam Commercial Bank building)	1935	2478	1957	2500	
32	X-ray building II (replaced by 72 nd Anniversary building in 1970)	ตึกรัศมีวิทยา หลังที่ ๒ (ตึกรังสีวิทยา)	Radiation therapy unit (replaced by 72 nd Anniversary building in 1970)	1939	2482	1965	2508	





No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
33	Eye building (replaced by Chalmprakiate building)	ตึกจักษุฯ	Inpatient eye unit	1939	2482	1999	2542	
34	Internal Medicine building (replaced by Her Majesty Heart Institute building)	ตึกโสตถกรรม	Inpatient medical unit	1939	2482	1994	2537	
34	Kao-Thai-Utit building I	ตึกบริษัทข้าวไทยอุทิศ (หลังที่ ๑)	Inpatient pediatric unit	1943	2486	1958	2501	
35	Doctor dormitory	หอพักแพทย์	Dormitory (Bombed in WWII (Sanvichien, 2010))	1943	2486	1945	2488	
36	Kumara building I	ตึกกุมารหลังแรก	Inpatient pediatric unit	1948	2491	1975	2518	


No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
37	Rajapattayalai auditorium	หอประชุม ราชแพทยาลัย	Auditorium	1952	2495	-	-	
38	The old OPD building	ตึกผู้ป่วยนอกเก่า	Outpatient department	1953	2496	-	-	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
39	The new Pathology building	ตึกพยาธิวิทยา (ใหม่)	Pathology, microbiology, parasitology departments	1955	2498	1994	2537	
40	Salasalayakam (surgical building)	ศาลาศัลยกรรม	Surgical unit, offices department of Surgery and anesthesiology	1955	2498	1986	2529	
41	Prachathipatai dormitory	หอประชานิปไตย	Medical dormitory	1955	2498	-	-	
42	Vibulaksama building	ตึกวิบูลย์ศักดิ์	Private inpatient unit	1956	2499	-	-	 <p style="text-align: center;">*</p>
43	Kiagsiri building	ตึกเคียงศิริ	Inpatient ob-gyn unit	1956	2499	1998	2541	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
44	Anandamahidol building	ตึกอานันท์มหิดล	Inpatient pediatric unit	1957	2500	1982	2525	
45	Narubesrmanit building	ตึกนฤเบศร์มานิต	Inpatient pediatric unit	1957	2500	1995	2538	
46	Un Posayachinda building	ตึกอุ้น โปษยะจินดา	Inpatient unit	1957	2500	1998	2541	
47	Kao-Thai-Utit building II	ตึกบริษัทข้าวไทยอุทิศ หลังที่ 2	Inpatient pediatric unit	1959	2502	1995	2538	
48	Siam Commercial Bank building I	ตึกธนาคารไทยพาณิชย์	Internal medicine inpatient unit and administrative office	1959	2502	-	-	 *
49	Thong-U Lamsam building	ตึกทองอยู่ ล้ำซำ		1959	2502	1965	2508	





No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
50	Nurse dormitory I	หอพักพยาบาล I		1959	2502	-	-	 *
51	Attakrawisunthorn building	ตึกอรรถกระวีสุนทร	New born inpatient unit	1959	2502	1998	2541	
52	Disable foundation building	ตึกมูลนิธิอนุเคราะห์คนพิการ	Prostatic , rehabilitation building	1960	2503	1986	2529	
53	Female medical student dormitory	หอพักนักศึกษาแพทย์หญิง	Female medical student dormitory	1960	2503	-	-	 *
54	Physiology building	ตึกสรีรศาสตร์	Lecture halls and offices of Department of Physiology and biochemistry	1960	2503	2005	2548	
55	Obstetrics building	ตึกสูติกรรม	Obstetrics inpatient unit	1960	2503	1998	2541	
56	Prasucharitsuda building	ตึกพระสุจริตสุดา	Private inpatient unit	1960	2503	-	-	 *
57	Srisangwan building I	ตึกศรีสังวาลย์	Inpatient unit	1960	2503	1985	2528	



No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
58	Male medical student dormitory	หอพักแพทย์ฝึกหัด (หอชาย II)	Dormitory	1963	2506	1995	2598	
59	Ploy Chaturachinda buiding	ตึกพลอย จาตุรจินดา	Eye, ENT inpatient unit	1963	2506	1999	2542	
60	Prayong-Lek Tangtrongchit building	ตึกประยงค์-เล็ก ตั้งตรงจิต	Private Inpatient unit	1963	2506	1986	2529	
61	Lady Vjitra building	ตึกท่านผู้หญิงจิตรา	Private Inpatient unit	1963	2506	-	-	 *
62	Physiology shop building	ตึกโรงงานสรีรวิทยา	Laboratory	1964	2507	2005	2548	
63	Pornpipul building	ตึกพรพิบูลย์	Private inpatient unit	1965	2508	1998	2541	
64	Obstetrics building	ตึกสูติศาสตร์	Inpatient unit	1965	2508	1998	2541	
65	Anandaraj building	ตึกอนันตราจ	Hematology building	1965	2508	-	-	
66	Medical library	หอสมุด	Medical library	1966	2509	-	-	


No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
67	Siriraj gymnasium building	หอกีฬาศิริราชสัมพันธ์	Gymnasium	1968	2511	2000	2543	
68	Forensic building	ตึกนิติเวชศาสตร์	Forensic office	1968	2511	1998	2541	
69	Forensic meeting building	ตึกหอประชุมนิติเวชศาสตร์	Forensic office	1968	2511	1987	2530	
70	Pava-Harischandra building	ตึกปาวา-หริศจันทร์	Medical inpatient unit	1968	2511	-	-	
72	Nurse dormitory II	หอพักพยาบาล II	Dormitory, inpatient unit	1968	2511	-	-	
73	72 nd Anniversary building	ตึก 72 ปี	Medical, surgical, radiology inpatient units	1970	2513	-	-	
74	Trauma building	ตึกอุบัติเหตุ (ตึกธนาคารนครหลวงไทย และตึกธนาคารไทยพาณิชย์)	Traumatic surgical center	1970	2513	-	-	


No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
75	Kosol Kantaputra building	ตึกโกศล กันตะบุตร	Inpatient pediatric unit	1971	2514	-	-	
76	Pa-ob Nob Supatra building	ตึกผะอบ นพ สุภัทรา	Inpatient medical units	1971	2514	-	-	 *
77	Preventive Medicine building	ตึกเวชศาสตร์ป้องกัน และสังคม	Preventive Medicine office	1971	2514	-	-	 *  *
78	Obstetric Gynecology building	ตึกสูติศาสตร์-นรีเวชวิทยา	Ob-gyn inpatient unit, family planning clinic	1972	2515	-	-	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
79	Nurse dormitory III	หอพักพยาบาล III	Dormitory	1972	2515	-	-	 *
80	Lottery building	ตึกสลากกินแบ่ง	Inpatient orthopedics unit	1973	2516	-	-	 *
81	Nurse dormitory IV	หอพักพยาบาล IV	Dormitory	1974	2517	-	-	 *
82	The new OPD building	ตึกผู้ป่วยนอกใหม่	Outpatient service	1975	2518	-	-	
83	Microbiology building	ตึกจุลชีววิทยา	Microbiology, pathology laboratories	1976	2519	-	-	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
84	Pediatric building II	ตึกกุมาร (หลังที่ 2)	Inpatient pediatric unit	1977	2520	-	-	
85	84 th Anniversary building	ตึก 84 ปี	Private medical and surgical inpatient unit	1979	2522	-	-	
86	New Chudhadhuj building	ตึกจุฬาราช (ใหม่)	Inpatient ob-gyn unit	1980	2523	-	-	 *
87	Laundry division building	ตึกงานบริการผ้า	Laundry	1980	2523	-	-	 *

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
88	Siriraj Medical Alumni building	ตึกสมาคมศิษย์เก่า แพทย์ศิริราช	Siriraj Medical Alumni office	1981	2524	-	-	 *
89	Resident physician dormitory	หอพักแพทย์ประจำ บ้าน	Doctor dormitory	1982	2525	-	-	 *
90	Sterilization building (Pharmacy building)	ตึกเวชศาสตร์ปลอด เชื้อและบริการกลาง (ตึกเภสัชกรรม)	Central sterilization supply	1982	2525	-	-	 *
91	Nuclear medicine building	ตึกวิจัยเวชศาสตร์ นิวเคลียร์	Nuclear medicine office	1982	2526	-	-	 *
92	Nutrition building	โรงครัว	Kitchen	1983	2527			 *

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
93	New Asdang building (Replacement of old Asdang building)	ตึกอักษรางค์	Internal medicine inpatient unit	1985	2528	-	-	
94	Srisangwan building II	ตึกศรีสังวาลย์ หลังที่ 2	Rehabilitation medicine office	1987	2530	-	-	 *
95	Anandamahidol building II (replacement of Anandamahidol I building)	ตึกอนันตมหิดล (ใหม่)	Pediatric ICU and inpatient unit	1988	2531	-	-	

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
96	Parking building	อาคารจอดรถ	Parking	1988	2531	-	-	 *
97	Samran Hangsawes building	ตึกสำราญ หังสเวส		1990	2533	2005	2548	
98	Waste water treatment building	อาคารบำบัดน้ำเสีย	Waste water treatment	1990	2533	-	-	 *
99.	Sayamindra building (replacement of female surgical building)	ตึกสยามินทร์	Operating suite, ICUs, Department offices	1992	2535	-	-	 

o.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
100	Mahitalakarn dormitory	หอพักมหิตลาดคาร	Medical student dormitory	1995	2538	-	-	 *
101	Adulyadejvikkrom building (replacement of Pathology building)	ตึกออดุลยเดชวิกรม	Pathology, microbiology, immunology laboratories, academic medical floors	1998	2541	-	-	 *
102	Her Majesty Cardiac Center (replacement of Internal Medicine building)	อาคารศูนย์โรคหัวใจ สมเด็จพระบรมราชินีนาถ	Cardiac center	2000	2543	-	-	 *
103	Electric substation	สถานีไฟฟ้าย่อย	Electric supply substation	2000	2543			 *

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
104	Rajanagarindra radiology building	ตึกรังสีวิทยนครินทร์	Radiology inpatient unit	2002	2545	-	-	 *
105	HRH Princess Mahachakri building (replacement of Kao-Thai-Utit and Narubesmanit buildings)	ตึกเจ้าฟ้ามหากักรี	Outpatient and inpatient pediatric unit	2002	2545	-	-	
106	Siriraj gymnasium and car parking building II	หอกีฬาศิริราช สัมพันธและอาคารจอดรถ II	Gymnasium and car parking	2002	2545	-	-	 *
107	Female medical student dormitory II (replacement of male dormitory II)	หอพักนักศึกษาแพทย์หญิง II	Dormitory	2002	2545	-	-	 *

No.	Name of the building	Name in Thai	Function	Year built		Year demolished		Lay out
				A.D.	B.E.			
108	Chalermprakiate building (replacement of Ploy-Chaturachinda, Eye buildings)	อาคารเฉลิมพระเกียรติ	Inpatient eye, ENT, surgical, private inpatient units	2003	2546	-	-	
109	Somdech Prasrinagarindra Centennial building (replacement of Treepetch and Chudhadhuj buildings)	อาคาร 100 ปี สมเด็จพระศรีนครินทร์	Ob-gyn surgical unit, inpatient ob-gyn unit	2004	2547	-	-	
110	Environment preservation building	อาคารรักษ์สิ่งแวดล้อม	Architecture office	2004	2547	-	-	 *
111	Srisawarintira building (replacement of physiology building)	อาคารศรีสวรินทิรา	Anatomy, biochemistry, physiology department offices	2011	2554	-	-	 *

(Source: Photos from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) ,* by Nantawat Sitdhiraksa, March 9, 2012)

Replacement of the older buildings to serve the expansion of the Hospital as a result of increased medical demand and services is an ongoing practice of the Hospital. New buildings give much more utilization area compare to the previous older building. The example is the Srisawarindira building (built in 2011) which replaced the previous older Physiology building (built in 1960) at the same location, there is 65,828 m² utilization area in the newer building, only 6,525 m² in the old Physiology building (**Figure 57**). There are 165,270 m² for Piyamaharajkarun building and 30,925 m² for His Majesty the King's 80th Birthday Anniversary 5th December 2007 building at the new Center of Medical Excellence ("Sayamindradhiraj medical institute," 2012) on the new piece of land next to the Hospital.



Figure 57: Replacement of Physiology building

☐ Physiology building, built 1960, with utilization area of 6,525 m²

☐ and ☐ Srisawarindira building, built 2011, with utilization area of 65,828 m²

(Source: Photo ☐ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011), Photos ☐ and ☐ by Nantawat Sitdhiraksa, Febuary 29, 2012)



Figure 58: The Center of Medical Excellence 2012

☐ Piyamaharajkarun building with utilization area of 165,270 m²

☐ His Majesty the King's 80th Birthday Anniversary 5th December 2007 building with utilization area of 30,925 m².

(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)

In 2005, there were 11,077 hospital staffs and 7,074 medical science students working in Siriraj Hospital campus on each day. The hospital was running 150 different courses for Health Science education, for both undergraduate and postgraduate students. The Medical school, Faculty of Medicine Siriraj Hospital, Mahidol University, is the oldest and a leading medical school of Thailand. The medical school is a 6-year program, with 302 medical students enrolled in each year. The school of medicine also provided 43 postgraduate residency training and 52 subspecialty training courses, for 953 doctors in 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*).

The number of patient visits was continuously increasing every year. From Siriraj Hospital annual report 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*). The yearly patient-visits (2005) were 4,076,400 visits consisted of 2,833,600 outpatient visits, 92,000 inpatients visits, 165,600 emergency room visits, 33,600 social welfare visits, and 960,000 other visits (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*). The mean daily patients-service was 16,200 visits per day, not including approximately about 10,000 visits a day by relatives of the patients. The hospital also provided 2,500 inpatient beds for admission.

Siriraj Hospital opened the Center of Medical Excellence on her 124th anniversary, April 26, 2012 on the piece of land, which was used as Bangkoknoi Railway Station, granted from the Government.

From the 2010 Annual Report, Siriraj Hospital Mahidol University (*Annual Report 2010 Faculty of Medicine Siriraj Hospital Mahidol University, 2011*), the Institutional Strategy for 2008-2011 of the Faculty of Medicine Siriraj Hospital included:

The Strategic Plans of Siriraj Hospital:

1. To be excellent in research
2. Teaching and learning excellence
3. Health care and service excellence
4. Internationalization
5. Administrative excellence
6. Social responsibility

The Vision of Siriraj Hospital:

To be the medical institute of the Kingdom, towards international excellence.

The Philosophy of Siriraj Hospital:

"True success is not in learning, but in its application to the benefit of mankind", from the writing of Prince Mahidol on his Bacteriology notebook ("The teaching of prince Mahidol (คำสอนของสมเด็จพระบรมราชชนก)," 2011).

The Mission of Siriraj Hospital:

To produce quality graduates, conduct researches, create academic atmosphere, and to be the leader in society that provides quality and up-to-date medical services with international standard, to gain trust with utmost popularity that will lead to good health and better quality of life among Thais.

Chapter 5

Consideration of Heritage Significance of Siriraj Hospital

Over the long period of 124 years, Siriraj Hospital has been continuously served as modern general hospital and modern medical school. The hospital has been able to continue her reputation as serving medical care to all socioeconomic background clients. The hospital has been through a continuous development, expansion, construction, demolition, replacement, reconstruction, and adaptation in building uses. There are also continuous changing in the culture, technology, and medical knowledge along the developmental path of the hospital.

The hospital was originally founded by King Rama V. Most of the hospital buildings were built with the support of the royal family and elites. Moreover, Prince Mahidol, the father of Thai modern medicine, a doctor himself, is the most prominent leading figure in Thai modern medicine and medical education. The hospital receives a continuous support from the royal family. This is one of the principal significances of the hospital.

The layout and styles of the buildings in the hospital are the outcome of multi-factors in origins. In 1888, when the hospital was founded, the main transportation to the hospital was via the river. All of the buildings in Siriraj Hospital which were built before 1969 were oriented towards the river. The patients and family commuted to the hospital mainly by boat. Siriraj pier is the symbol of Siriraj Hospital. The main original road or the central axis of the hospital is Chakrapongse Road, paved in 1899 by private donation from Prince Charapongse (Insuan, 2011), starting from Siriraj Pier to the main monument of Prince Mahidol in the main courtyard of the hospital. The main buildings: the old OPD building; the main administrative building; the dormitories were mainly aggregated along the river and the Chakrapongse Road. The original layout of the hospital reflects the water transportation culture in the past. Not only the significant buildings related to patient care and hospital history, the medical school buildings, also have significance, and social and educational values such as Siriraj Pier, Mahidolbampen building, and Anatomy building are also in need of compiling into a catalogue of their origin in chronological order and decaying states to help setting up an inventory of restoration, conservation and preservation plans.

The medical school also has a long traditional freshman (freshie) reception ceremony established in 1932, rab-nong-kam-faak, which in Thai means to receive the freshmen (freshie) across the river bank. The ceremony plays a significant social value in connection and passing along the tradition between the current medical students and graduate physicians. In 1966, the hospital was granted an extra piece of land from a government project of making new road connection between the new Prapinkloa bridge and the Phra Phuttha Yodfa Bridge (the Memorial bridge), the first bridge crossed Chaopraya River ("The Royal decree expropriation in Bangyeekan and Sriraj districts 1966 (พระราชฎีกา กำหนดเขตที่ดินในบริเวณที่จะเวนคืนในท้องที่ตำบลบางขันและตำบลศิริราช อำเภอบางกอกน้อย จังหวัดธนบุรี พ.ศ. 2509)," 1966), which made provision for the hospital to be developed and expanded to accommodate the patients which would come to Siriraj Hospital by the road, Arunamarin road. The first building faced to the road is the new OPD building, built in 1975, 6 years after the completion of the Prapinkloa Bridge over Chaopraya River. The hospital was insidiously and continuously expanded, started from Chaopraya River to Arunamarin road. In 2012, the hospital, again, was expanded northward to Bangkoknoi Canal, with the construction of the new Center of Medical Excellence (**Figures 16&19**).

In 1888, the very first buildings of the hospital were thatch roofed wooden house-style patient pavilions (**Table 5**). The early buildings were small hospital-house style, in brick and cement with ceramic tiles, or wooden pavilions with ceramic tiles. The first one-room octagonal operation theater was built in 1903 after the well-known early use of antiseptic in operations. After 1923, the main architectural style of hospital buildings was the pavilion or rack-like style (*pavillon en peigne*) building, according to the popularity of the Nightingale's principle of hospital design. The first single block tower (*hospital monobloc*) was the 72nd anniversary building, which was built in 1970. The hospital buildings after 1970 until now are mainly built in single block tower style. The building becomes higher and taller, equipped with more complex and advanced medical technology. Medicine goes toward the direction of curative, multiple sophisticated investigations, compartmentalized, and at times claimed by patient to be impersonal.

The role of the hospital as the leading general medical center and medical school has long formed the hospital main identity. The continuity of use for 124 years promotes Siriraj Hospital in the sense of the leading general medical hospital, and medical school, and the leader of medical science in Thailand established the reputation of Siriraj Hospital to the public as a place of giving the best medical care to every different walk of people from the general population, regardless of their income or ability to pay, to the King and the royal family, as in the hospital philosophy: " true success in not in the learning but in the application to the benefit

of mankind” (*Annual Report 2009 Faculty of Medicine Siriraj Hospital Mahidol University, 2010*).

Statements of significance of Siriraj Hospital

Siriraj Hospital is significant for the following reasons:

1. Siriraj Hospital is the oldest hospital, built to dedicate to Prince Siriraj, son of Rama V (**Figure 59**), and the oldest medical school in Thailand, dating from 1888. Siriraj Hospital has been continuously in used and developed over the period of 124 years. Siriraj Hospital is a living healthcare specimen.
2. Siriraj Hospital is the landmark of both Thai modern and traditional medicines.
3. Siriraj Hospital is the first of its kind in healthcare campus planning in Thailand. The hospital campus ground is significant because of the spatial layout of the buildings, its location, individual buildings, the history and evidence of change from medical, academic, and cultural reasons over the period of 124 year. The continuity of use both medically and academically reflects the historical planning, changes, and developing of the hospital during the long period.
4. Some particular buildings are significant for historical, social, and aesthetic values because the design and style of the buildings reflects changes and developments in approach to healthcare through the long period of the hospital service.
5. The hospital campus has a strong history of social and cultural association with communities, current and former students and staff, and surrounding communities and residents.
6. Siriraj Hospital is always under the continuous royal patronage.

The heritage values of Siriraj Hospital are multi-dimensional associated with the original missions of the hospital. The heritage values reflect in its development and direction of the hospital to serve the purposes of medical academics and services.



Figure 59: Prince Siriraj and Queen Saowapa Pongsri 1987

(Source: 120 Years of Achievements Faculty of Medicine Siriraj Hospital Mahidol University, 2008 (*120 Years of achievements Faculty of Medicine Siriraj Hospital Mahidol University, 2008*))

The heritage value assessment of Siriraj Hospital

The heritage value assessment of Siriraj Hospital is as the followings:

1. Functional value: Siriraj Hospital is the leading medical center and medical school. It was the first hospital and medical school in Thailand. Siriraj Hospital held a history of medical history of Thailand from the traditional Thai medicine to present modern medical practice, and also for innovative medical service to serve the community in the future.



Figure 60: Functional value of Siriraj Hospital

(Source: Photo from Siriraj Hospital Annual Report 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*))



Figure 61: Functional value of Siriraj Hospital

(Source: Photo from Siriraj Hospital Annual Report 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*))

2. Educational value: Siriraj Hospital is a leading health care academic institute, running by Mahidol University. There are approximately 150 different health science courses running in the campus. There are six different medical related

museums in the hospital: 1.Ellis Pathological Museum; 2.Songkran Niyomsane Forensic Medicine Museum; 3.Ouay Ketusingh Museum of History of Thai Medicine; 4.Parasitology Museum; 5.Congdon Anatomical Museum; and 6.Sood Sangvichien Prehistoric Museum & Laboratory. There will be also other two new museums, the Siriraj Medical Museum and Thai Medicinal Herbs Museum added to the new excellence medical center, which is now under construction. Research, education, and medical information technology were critical for the advancement of medical science and public health. Health promotion exhibition and medical conferences had been running actively by the hospital and the university.



Figure 62: Educational value of Siriraj Hospital

(Source: Photo from Siriraj Hospital Annual Report 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*))



Figure 63: Educational value of Siriraj Hospital

(Source: Photo from Siriraj Hospital Annual Report 2005 (*Annual Report 2005 Faculty of Medicine Siriraj Hospital Mahidol University, 2006*))

3. Historic value: Siriraj Hospital has a long standing history for 124 years. It marked the history of medical education of Thailand as well as Thai medical practices. Siriraj Hospital accounted for the Thai medical history heritage, medical education heritage, also architectural heritage. Over the period of 124 years, 47 hospital buildings have been demolished (*120 Years of achievements Faculty of Medicine Siriraj Hospital Mahidol University, 2008*). Changes in the spatial layout of hospital and individual buildings reflect the changes in medical practices, medical academics, and culture. At the present day, there are ten buildings, built before 1960, survived including **(Table 11)**: 1. Siriraj Pier (1925); 2. Mahidol-Bampen building (1924); 3. The Anatomy building (1925); 4. the main administrative building (1925); 5. Mahidolvaranussorn building (1932); 6. Rajapattayalai auditorium (1952); 7. the Old OPD building (1953); 8. Prachathipatai dormitory (1955); 9. Vibullaksama building (1956); and 10. Siam Commercial Bank I building (1959). The oldest building survived until today was the Mahidolbampen building, which was built in 2467 (1924) from the donation of Prince Mahidol, the present King's father. The main gateway to the hospital used to be through the Siriraj Pier on the bank of Chaopraya River, nowadays the main entrance of the hospital was changed to through the road traffic through Arunamarin road, and will be soon move to the new entrance through the new entrance of the new Center of Medical Excellence.



Figure 64: The main Administrative building
(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)

4. Social value: Siriraj Hospital is a non-profit organization. The philosophy and the mission of the hospital are to promote health and well-being of the public and individuals. As from the handwriting of the King Chulalongkorn (Rama V) to the Committee of Hospital Establishment on 25th December 1888, “*Even with the best available health care that my child had received, he still suffer so much. I wonder how much more the children of our poor people must have endured?*” (Administrative Achievements 2001-2004 Faculty of Medicine Siriraj Hospital Mahidol University, 2005) The hospital today serves medical service to every different walk of people from the general population, regardless of their income or ability to pay, to the King and the royal family. The other social value of Siriraj Hospital relies on the current and former students and hospital staffs. The annual social events, held at the Rajapattayalai Auditorium, for the students and alumni are:

1. The Alumni meeting party
2. The annual welcoming party for the new medical students, freshmen (rab-nong-kam-faak), first started in 1932
3. The senior farewell party to celebrate the graduation of the last year medical students.

5. Aesthetic value: The area of the hospital today used to be sites for palaces and mansions for princes and princesses in the past. The hospital was located on unique location in a corner of the Chaopraya River and Bangkoknoi Canal, just across from the Grand Palace. In 2006, there are two buildings in the hospital received the ASA Outstanding Architectural Conservation Award by the Association of Siamese Architects under Royal Patronage including Rajapattayalai auditorium (1952), and Siriraj Pier (1923) (“Outstanding architectural conservation award 2006 (รางวัลอาคารอนุรักษ์ศิลปสถาปัตยกรรมดีเด่นประจำปี 2549),” 2006). The oldest building survived until today is the Mahidol-Bampen building, which was built in 2467 (1924) by the donation of Prince Mahidol, the King’s father, who used to work as a doctor at Siriraj Hospital.



Figure 65: Siriraj Pier, built in 1923.

(Source: Photo by Nantawat Sitdhiraksa, February 29, 2012)

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์



Figure 66: Mahidolbampen building, built in 1924
 (Source: Photos by Nantawat Sitdhiraksa, March 9, 2012)



Figure 67: Rajapattayalai Auditorium, built in 1952
(Source: Photo by Nantawat Sitdhiraksa , Febuary 29, 2012)

มหาวิทยาลัยศิลปากร ของบัณฑิต



Figure 68: Rajapattayalai Auditorium
(Source: Photo by Nantawat Sitdhiraksa, Febuary 29, 2012)

6. Uniqueness value: The unique value of Siriraj Hospital is that it was founded by the King Rama V and has been under continuous patronage by the royal family ever since. Prince Mahidol, the present king's father, was also known in the title of "father of Thai modern Medicine" because of his great dedication to improve Thai medical standard and medical education. Prince Mahidol himself, used to work as a doctor, medical teacher, fund raiser, and administrator at Siriraj Hospital. Siriraj Hospital also given a kind permission from the royal family to give medical care to the members of the royal family, and currently to the King himself. The public knows Siriraj Hospital for both the reputation for giving medical care to public, and the King and his family.

Evidence of significances and authenticity

By using the Hoi An Protocols, the various sources of information for authenticity, a number of sources were researched to study the values of Siriraj Hospital. The resources include:

1. Publications; books, journal articles, hospital annual reports for analysis of use and clients of the hospital,
2. Hospital and medical library archives
3. Royal decrees
4. Historical photos
5. Historical map
6. Oral histories from former medical staff and students
7. Websites: hospital website, museum website
8. Filed study: period architectural style, patina

Table 6 shows potential sources of information on authenticity of Siriraj Hospital.

Table 6: Potential sources of information on authenticity of Siriraj Hospital

Sources of Information on Authenticity					
Primary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
Place	Oral histories	Traditional indigenous knowledge	Period artwork		Spatial integrity
Primary documents			Contemporary literature		Degree of Continuity of use
Inscriptions	Socio-economic survey of current users		Dated samples of materials and styles		Socio-cultural context
	Demographic data		Patina		Environmental
Historical Photos					
Historical maps					
Secondary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
Chronologies	Analysis of continuity of use, occupation		Artistic commentaries and reviews	Interpretative studies	Surrounding spaces
Travelers' accounts	Studies of craft organization		Stylistic analysis	Application of models such as nearest neighbor analysis	Political context
Histories and commentaries	Analysis of political consensus		Study of comparative sites and resources	Studies of cultural antecedents	Economic
	Social commentaries	Engineering and structural studies			Context of technological change

Most of historic buildings of Siriraj Hospital located along the Chaopraya River including the Siriraj Pier, the old OPD building, Rajapattayalai Auditorium, and the main administrative building. Most of the clients of the hospital now accessed to the hospital by car through the main entrance through the Arun-Amarin road. In the past, most of the clients came to the hospital by boat through Siriraj Pier.

Siriraj Hospital is located between the corner of Chaopraya River and Bangkoknoi Canal. Bangkok itself is located in floodable area. There were records of hospital flood in 1942, 1975, 1978, 1981, 1983, 1995, and the latest great flood of 2011 (**Figure 69**). In 1989, the King Bhumibol initiated the royal project of flood prevention at Siriraj Hospital by using the highest water level of 1983 as a reference maximum water level (*Water drainage project to eliminate flood problem at Siriraj Hospital the royal project* (โครงการระบายน้ำเพื่อขจัดปัญหาน้ำท่วมบริเวณโรงพยาบาลศิริราชในพระราชดำริ), 1998). Not only at Siriraj Hospital, he also initiated the flood prevention project across Bangkok and adjacent areas. Flood not only affects medical service, and academic activities of the hospital, but also substantially affects the heritage areas and buildings in the hospital campus.

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Figure 69: The annual seasonal floods at Siriraj Hospital

๑ 1975 flood ๒ 1983 flood ๓๓ visit for the Royal Flood Protection Project by King Bhumibhol and HRH Princess Mahachakri ๓๔ 1995 flood ๓๕ 2011 flood

(Source: Photos ๑-๓ from Water drainage project to eliminate flood problem at Siriraj Hospital the royal project (*Water drainage project to eliminate flood problem at Siriraj Hospital the royal project* (โครงการระบายน้ำเพื่อจัดปัญหาหน้าท่วมบริเวณโรงพยาบาลศิริราชในพระราชดำริ), 1998), Photos ๓ & ๓๕ by Nantawat Sitdhiraksa, November 27, 2011)

Chapter 6

Conservation Planning and Discussion

Conservation planning-Discussion

Need for conservation planning

The stakeholders of Siriraj Hospital are mainly patients and family, medical staff and supporting personnel, and student. The changing in layout of the hospital and the styles hospital buildings reflect the advancement in healthcare culture, the advancement of medical science, the advancement of transportation, the changes of government healthcare policy, and also the strategic plans of the hospital. Currently, there are no existing definite policies or criteria to conserve significant heritage buildings. The act of replacing older buildings and conserving the heritage building are usually separated and compartmentalized. Holistic conservation and construction planning, congruent with current Hospital strategic plans and mission, are needed to keep multi-dimensional heritage significances, values, and authenticity of Siriraj Hospital, along with maintaining Siriraj Hospital's mission to provide quality and up-to-date medical services with international standard, to gain trust with utmost popularity that will lead to good health and better quality of life among Thais.

Because the hospital is located on the banks of Chaopraya River and Bangkoknoi Canal, the holistic annual flood protection and flood management plan are the critical parts of the conservation planning.

Buildings listing according to their chronology and physical states should be done as a part of conservation plan to set priority in conserving the buildings.

Objective of conservation planning

The goal of Siriraj Hospital conservation planning is to preserve the heritage values of Siriraj Hospital based on a multi-dimensional interpretation of authenticity and, at the same time, assuring of being congruent with the Hospital strategic plans and mission.

Discussion of the dimensions of values and authenticity of Siriraj Hospital

In summary the heritage values of Siriraj Hospital include:

1. Functional value
 - 1.1 Siriraj Hospital is a leading modern medical center
 - 1.2 Siriraj Hospital is a leading medical school
2. Education value
 - 2.1 Siriraj Hospital is a medical science academic center
3. Historical value
 - 3.1 Siriraj Hospital is a landmark of Thai modern medicine and medical school
 - 3.2 Siriraj Hospital has always been under the continuous royal patronage
4. Social value
 - 4.1 Social Hospital responsibility: to promote health and well-being of the public and individuals
 - 4.2 Current and former students
5. Aesthetic value
 - 5.1 Location and setting of the hospital: the hospital is located on the West bank of Chaopraya River. The layout relates closely with the historical access to the by the river. Most of buildings in the past faced to the river. The main buildings and the main road of the hospital are oriented towards Chaopraya River.
 - 5.2 Buildings: The design and style of the buildings reflect changes in approach to healthcare through the long period of the Hospital. There are ten heritage buildings built before 1960. All the heritage patient service buildings are in pavilion style.
6. Uniqueness value
 - 6.1 Siriraj Hospital is under the constant royal patronage
 - 6.2 Prince Mahidol: Father of Thai modern medicine

By using Hoi An Protocols (UNESCO, 2009) as a reference, an implication for the authenticity of Siriraj Hospital as a heritage conservation can be described in the various aspects of location and setting, form and design, use and function and immaterial qualities are as the followings:

Table 7: Authenticity on location and setting: Siriraj Hospital

Dimension of Authenticity	
Location and setting	Details
Place	Siriraj Hospital buildings, medical school buildings, pier, area along the River banks, fence, roads, monuments, parks and green space, memorial trees, recreation area: playground, tennis court swimming pool
Setting	Siriraj Hospital's main identities are the oldest general hospital, and the oldest medical school in Thailand.
Sense of place	Siriraj Hospital is a general medical hospital and a leading medical school, the leader of medical science in Thailand. The long known reputation of Siriraj Hospital to the public is a place to give the best medical care to every different walk of people from the general population, regardless of their income or ability to pay, to the King and the royal family.
Living elements	Siriraj Hospital is a functioning medical heritage for its continuity of medical service, medical school, the advancement of medical science, the hospital that was trusted by general public and the royal family for the period of 124 years.
View and vista	Siriraj Hospital is located between the West bank of Chaopraya River and junction of Bangkoknoi Canal. The location of the hospital provides the view of both Chaopraya River and Bangkoknoi Canal, also the view of the other side of the river

Table 8: Authenticity on form and design: Siriraj Hospital

Dimension of Authenticity	
Form and design	Details
Spatial layout	The layout relates closely with the historical access to the Hospital by the river. Most of buildings in the past faced to the river. The main buildings, for example, the old OPD build and the main administrative building and the main road of the hospital are facing to the river.
Design	The design and style of the buildings reflects changes in approach to healthcare design through the long period of the hospital, from the thatch roof wooden building to the ceramic tile wooden building, to small hospital house (<i>maison hospitaliere</i>), to pavilion type building, and at this point, tower style megahospital.

Table 9: Authenticity on use and function: Siriraj Hospital

Dimension of Authenticity	
Use and Function	Details
Use(s)	Siriraj Hospital functions mainly as a medical center and medical school
User(s)	The clients of the hospital are including: patients and family members; hospital staffs; former and current students; and visitors.
Associations	The major associations are alumni, the large cohort of current, former students and hospital staffs, nonprofit medical foundations, patients and patients' support groups.
Changes in the use over time	The main purposes of uses of the hospital have not been changed over the period of 124 years. However, in the level of function of the building, there are some continuous changes and replacement of the building in a response to the changing medical practice, the advancement of medical science, patients' demand, and culture.
Impacts of use	The main impacts of the use of the hospital are healthcare services and medical education.
Use as a response to historical context	Siriraj Hospital has been through changes of the social development, changes of culture over time, war, and medicine itself.

Table 10: Authenticity on immaterial qualities: Siriraj Hospital

Dimension of Authenticity	
Immaterial Qualities	Details
Artistic expression	Healthcare architecture
Values	Functional, historic, educational, aesthetic, social, and unique values.
Emotional impact	As a non-profit hospital provided medical services to all Thais, regardless of their social classes and income. Changes in layout and building style affect the feeling of the clients.

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Ten significant heritage buildings at Siriraj Hospital




At the present campus location, ten buildings built before 1960, have been remained, which includes (**Table 11 and Figures 70-80**):

1. Siriraj Pier (1923)
2. Mahidol-Bampen building (1924)
3. Anatomy building (1925)
4. The main administrative building (1925)
5. Mahidolvaranussorn building (1932)
6. Rajapattayalai auditorium (1952)
7. The Old OPD building (1953)
8. Prachathipatai dormitory (1955)
9. Vibullaksama building (1956)
10. Siam Commercial Bank I building (1959)

These ten heritage buildings are good combination of patient-service buildings, academic buildings and medical-support buildings. I propose these buildings as a part of Siriraj Hospital heritage conservation plan. The oldest structure in Siriraj Hospital is Siriraj Pier (1923). The oldest building survived until today is the Mahidolbampen building, which was built in 1924 from the donation of Prince Mahidol, the father of the present King. All ten heritage buildings are located by and oriented to Chaopraya River, which relates closely with the historical access to Siriraj Hospital by the river. This evidence is also supported by the orientation of the main internal road of the Hospital, Chakrabongse Road, which lies between Siriraj Pier and the center of the whole Hospital, the statue of Prince Mahidol.

Table 11: Ten significant heritage buildings at Siriraj Hospital in their current condition, 2012

No.	Building	Year built	Current use	Lay out
1	Siriraj Pier	1923	Pier	
2	Mahidol-Bampen building	1924	Adapted to house offices of medical foundation	 
3	The Anatomy building	1925	Adapted to Museum	

No.	Building	Year built	Current use	Lay out
4	The main administration building	1925	Administration	
5	Mahidol-Varanussorn building	1932	Private inpatient unit	
6	Rajapattayalai auditorium	1952	Auditorium	

No.	Building	Year built	Current use	Lay out
7	The Old OPD building	1953	Adapted to be offices of Deans and IT department	
8	Prachathipatai dormitory	1955	Closed, partially use for cafeteria	
9	Vibullaksama building	1956	Private inpatient unit	
10	Siam Commercial Bank I building	1959	Private inpatient unit	

(Source: Photos by Nantawat Sitdhiraksa, February 29, 2012)



Figure 70: Location and layout of the ten significant buildings of Siriraj Hospital, along Chaopraya River

(Source: Map from 120 Memorabilia of Siriraj (*120 Memorabilia of Siriraj*, 2009)

- ☐ Siriraj Pier (1923), E15
- ☐ Mahidol-Bampen building (1924), E2
- ☐ Anatomy building (1925), D1
- ☐ The main Administrative building (1925), E11
- ☐ Mahidolvaranussorn building (1932), A13
- ☐ Rajapattayalai auditorium (1952), E8
- ☐ The Old OPD building (1953), E1
- ☐ Prachathipatai dormitory (1955), B2
- ☐ Vibullaksama building (1956), A15
- ☐ Siam Commercial Bank I building (1959), A8

SIRIRAJ PIER

Year Built : 1923

Current use : Pier



Figure 71: Location and layout of Siriraj Pier (1923), a significant building of Siriraj Hospital.

(Source: Key plan by Kobkit Kledkrueamas, photo ๑ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ๒ by Nantawat Sitdhiraksa, March 9, 2012)

MAHIDOL-BAMPEN

BUILDING

Year Built : 1924
 Current use : Adapted to house offices
 of medical foundation



Figure 72: Location and layout of Mahidol-Bampen building (1924), a significant building of Siriraj Hospital

(Source: Key plan by Kobkit Kledkrueamas, photo ๑ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ๒ by Nantawat Sitdhiraksa, March 9, 2012)

THE ANATOMY

BUILDING

Year Built : 1925
 Current use : Adapted to Museum

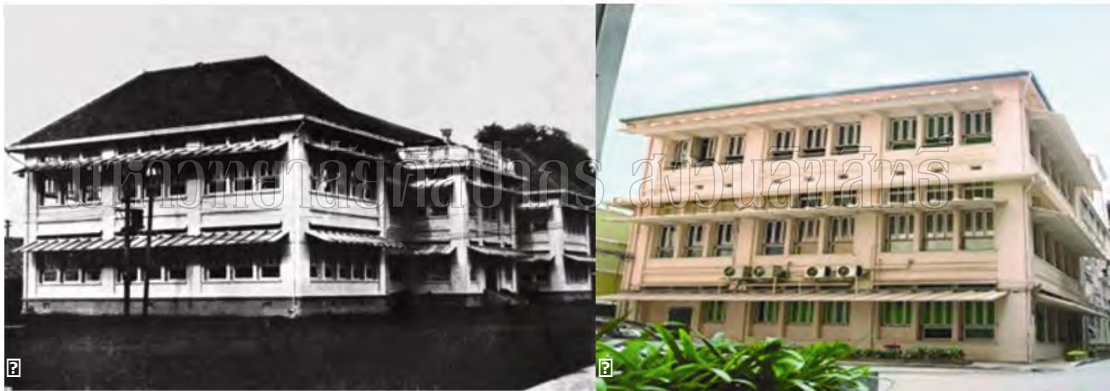


Figure 73: Location and layout of the Anatomy building (1925), a significant building of Siriraj Hospital
 (Source: Key plan by Kobkit Kledkrueamas, photo ๗&๗ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011))

THE MAIN ADMINISTRATIVE BUILDING

Year Built : 1925
 Current use : Administration



Figure 74: Location and layout of the main Administrative building (1925), a significant building of Siriraj Hospital
 (Source: Key plan by Kobkit Kledkrueamas, photo [?] from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011))

MAHIDOLVARANUSSORN BUILDING

Year Built : 1932
Current use : Private inpatient unit



Figure 75: Location and layout of the Mahidolvaranussorn building (1932), a significant building of Siriraj Hospital
(Source: Key plan by Kobkit Kledkrueamas, photo ① from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ② by Nantawat Sitdhiraksa, March 9, 2012)

RAJAPATTAYALAI

AUDITORIUM

Year Built : 1952
Current use : Auditorium



Figure 76: Location and layout of Rajapattayalai auditorium (1952), a significant building of Siriraj Hospital

(Source: Key plan by Kobkit Kledkrueamas, photo ๑ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ๒ by Nantawat Sitdhiraksa, March 9, 2012)

THE OLD OPD.

BUILDING

Year Built : 1953
 Current use : Adapted to offices of
 Dean and IT department

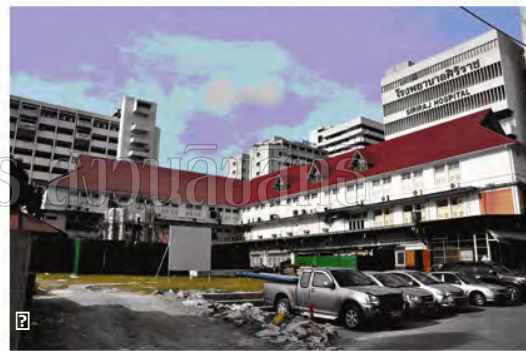


Figure 77: Location and layout of the Old OPD building (1953), a significant building of Siriraj Hospital
 (Source: Key plan by Kobkit Kledkrueamas, photo ๗ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ๘ by Nantawat Sitdhiraksa, March 9, 2012)

PRACHATHIPATAI

DORMITORY

Year Built : 1955
 Current use : Closed



Figure 78: Location and layout of Prachathipatai dormitory (1955), a significant building of Siriraj Hospital

(Source: Key plan by Kobkit Kledkrueamas, photo ๗ from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ๗ by Nantawat Sitdhiraksa, March 9, 2012)

VIBULLAKSAMA

BUILDING

Year Built : 1956
 Current use : Private inpatient unit



Figure 79: Location and layout of Vibullaksama building (1956), a significant building of Siriraj Hospital

(Source: Key plan by Kobkit Kledkrueamas, photo 7 from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo 8 by Nantawat Sitdhiraksa, March 9, 2012)

SIAM COMMERCIAL BANK BUILDING

Year Built : 1959
Current use : Private inpatient unit



Figure 80: Location and layout of Siam Commercial Bank I building (1959), a significant building of Siriraj Hospital
(Source: Key plan by Kobkit Kledkrueamas, photo ① from Siriraj Hospital Archives & SiMuseum Photo Gallery Photo Gallery of Siriraj Museum (Insuan, 2011) , photo ② by Nantawat Sitdhiraksa, March 9, 2012)

Discussion of how expansion could occur without impacting further on significance

Siriraj Hospital is significant and valuable by its functional, educational, historical, aesthetic, social, and uniqueness values. Significances and values of Siriraj Hospital come in multi-dimensional aspects of authenticity. By expansion of the Hospital, replacement of old buildings with high-rise block style buildings, Siriraj Hospital still can preserve some parts of its significances and authenticity as an advanced general medical hospital and a leading medical school. However, in historical and aesthetic values of the Hospital as a landmark of Thai modern and traditional medicine, a landmark of Thai medical school development, the living specimen of changing in design and style of the hospital buildings definitely will be lost. Conservation planning by all groups of stakeholders based on reliable multiple sources of information on authenticity is needed to be done to preserve the heritage significances and values of the hospital in a congruent manner with the current hospital strategies and plans.

Replacement of older buildings in the hospital continues. Hospital building design is usually the result of gentle combination of sympathy, cultures and beliefs, social attitude, technology, the advancement of science and medical knowledge, and also from the Hospital strategic plans. Changing in hospital building design reflects the continuity of changing social attitude and the science's impact on architecture ("Designation listing selection guide health and welfare buildings", 2011). From the long continuous use of the hospital adaptation of use of the building, renovation, replacement of older buildings in the hospital are inevitable, partly from changing in healthcare demand and economics, partly from social attitude and partly from the advancement and impact of technology and medical science. The stakeholders of Siriraj Hospital are mainly patients and family, medical staff and supporting personnel, and students. Today, the hospital design is influenced by the changing needs of society for better technology, new services, and greater patient access. There is a blur line between the heritage buildings and new advance medical buildings. The practice of replacement of the older buildings at Siriraj Hospital has many different reasons. Some are the result of the war, some are due to the failing condition of the buildings, and others to house a larger scale of patients and students. The new buildings are usually taller, capable of giving more sophisticated medical care or procedures, have more capacity to house the patients. The land cost in Bangkok becomes very expensive. With the limitation of the land scale, adding a new building means having to demolish the older existed previous buildings. The hospital has expanded inconstantly since it was established as a hospital. Further expansion could be secured by buying a property from a private owner or by land expropriation by the government for the hospital. The last land expropriation for

Siriraj Hospital occurred in 2003 by the government, the area of Thonburi (Southern) railway station, next to the hospital, along the Bangkoknoi Canal, an area of 33 rais (13.2 acres). The project of the new medical area is to build the international excellent medical and research centers. Expanding of hospital area, by buying nearby private property and land expropriation, results in temporary slowing down of the replacement of existing heritage buildings in the Hospital area. However, with the increasing of population, increasing in medical service demand, advancement of medical technology, practice of replacement of the older buildings definitely would be occurred as in the part of evolution of the hospital (**Figure 81**). To preserve of heritage significance and values of the Hospital along with the expansion of the Hospital, well established guidelines of conservation to ensure the design and orientation of new buildings should be done in sympathy with the spatial layout, view, and utilization of the existed significant heritage buildings.

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Figure 81: Replacement of previous old buildings at Siriraj Hospital by year
(Source: Map by Sanjai Sangvichien & Napassawan Insuan, Siriraj Hospital Archives 2011 (Insuan, 2011; Insuan & Thammetar, 2012))

- ☐ Syamindra building 1992
- ☐ Adulyadejvikrom building 1998
- ☐ Her Majesty Cardiac Center 2000
- ☐ HRH Princess Mahachakri building 2002
- ☐ Female Medical Student Dormitory 2002
- ☐ Chalermprakieat building 2003
- ☐ Somdech Prasrinagarindra Centennial Building 2004
- ☐ Srisawarindira building 2011
- ☐ New building project site 2015 (will replace Pava-Harischandra and Pa-ob Nop Supatra buildings)

Discussion of options

There are some options for conservation plan of Siriraj Hospital, which include:

1. No change, continue with no conservation plan
2. Restore each building separately and independently
3. Tear the building down and build brand new facilities
4. Conserving management plan of the heritage buildings and open space along the riverfront asset of the campus.

Each option will lead to different consequences, for example, as the followings:

No change continue with no conservation plan: currently there is no well organized conservation plan of the hospital. Systemic and thorough significance value and authenticity assessment and evaluation have not been documented. Loss of historical and significant buildings might threaten the significances and values of the hospital.

Restore each building separately and independently: In the past, the restorations of the hospital building were done separately without cooperating the holistic environment or supporting facilities plans. The positive impact for this option is that it might be more economic but only for the short term. However, it would lack sense of holistic conserving management plan and also lack of organized direction. It would not also be congruent with the holistic hospital strategies and plans. Holistic conservation plan might be require extra budget at the beginning, but it would be cheaper and sustainable in the long run. The negative impact is the campus would look incongruent in heritage conservation.

Tear the buildings down and build brand new facilities: The positive impact is the hospital will have a modern look and get much more utilization space. However, the negative impact is the campus would irreversibly lose its historic and heritage identities.

Conserving management plan of the heritage buildings and open space along the riverfront asset of the campus congruently with the hospital strategies and plans: The best option is to conserve the heritage buildings and open space of the riverfront asset of the hospital. The positive impact is it would keep the heritage significances of the hospital and, at the same time, promote the use of the heritage site along with the direction and expansion of the hospital. The negative impact is the hospital has to invest its resources in recognizing, organizing, and revising a sustainable conservation plan.

Some key principals of the conservation plan

1. Enhancing the hospital environment

- 1.1 The tangible evidence of the historical association from long and continuous use of the hospital as a medical center and medical school should be conserved. The values of the significant historical buildings should be conserved along with their setting and surrounding area, the open space, park and green area. The aim is to enrich and inspire clients and users of the hospital to appreciate the historical heritage sites of the hospital when they visiting the hospital campus.
- 1.2 The design and orientation of the new building should be in sympathy with the spatial layout, views, and utilization of the significant heritage buildings.
- 1.3 Zoning the heritage significant area should be planned along with the development of advanced medical service area (**Figure 85**).
- 1.4 Listing of all hospital buildings according to their chronological development, physical states, past and current functions. The physical and heritage assessments should be used in the development of a hospital plan.
- 1.5 An interpretation of the heritage significance of the hospital should be provided in the form of plaque, or brochure on hospital history and significant buildings.
- 1.6 Reconsidering the management plan of the hospital's fences and walls between each building (**Figures 88&89**). The hospital slowly got pieces of land added for the expansion of the hospital. Original fences and walls around each adding property are not formed in the organized planning (**Figure 88**). Systemic walls and fences management would make the hospital have more holistic identity. The new wall should not obscure the view and the environment of the heritage hospital buildings from the river and road (**Figure 89&90**).



Figure 82: Fences and walls within Siriraj Hospital

(Source: Photos by Nantawat Sitdhiraksa, March 10, 2012)

- ☐ fence in front of School of Nursing
- ☐ wall at the side of School of Nursing, direction toward the Main Administrative building
- ☐ wall at the side of School of Nursing, direction toward Siriraj Pier
- ☐ wall and fence next to the swimming pool and Chaopraya River
- ☐ wall in between medical library and Male Medical Student Dormitory
- ☐ wall between Female Medical Student Dormitory I and the new Center of Medical Excellence

- 1.7 Develop a master plan for landscape management at Siriraj Hospital, providing for the conservation plan and policy to preserve and manage the trees, the green areas, and open space of the hospital to maximize the use of the space. Trees and green area should encourage views and the access to the significance of the heritage buildings.
- 1.8 Promote access and utilization of the heritage facilities and area along the river front (**Figures 85&89**). Reestablish the use of Siriraj Pier as a part of recreation and enhancing the landscape of heritage buildings along Chaopraya River. Improve the physical environment of the historical heritage building and sites and also the main internal historical road of the hospital, Chakrabongse road as part of recreation and healing environment of the hospital.
- 1.9 Improving access, traffic, roads, and paths: relocate and manage the parking space to enhance more open space and providing a welcoming atmosphere around the heritage site of the hospital (**Figures 85, 86, 87&89**). Most of the areas in front of the building were taken by private cars parking. Road traffic and parking space management plan should be compatible with heritage significance of the places and buildings. Traffic and motor vehicles control, density load and carrying capacity assessment would be studied (**Figure 86**). The schedule shuttle bus service by the hospital should be provided to decrease the motor vehicles load in the campus. A new public transportation project, the metro-train and a subway train system will have stations close to the medical campus. Parking areas near the new metro and subway stations and schedule shuttle bus service would be more practical and would help in eliminating traffic congestion in the hospital. Congestion within the inter-connecting paths, roads in the campus should be dealt with. Cares should be removed from in front of buildings by providing with parking areas or parking buildings and schedule shuttle electric bus. Transportation, traffic flow, and patient flow should be part of well holistic plan in according to heritage conservation plan.
- 1.10 Management of pedestrian paths along with the traffic management of the hospital. A new pedestrian path along Chaopraya River should be implemented to enhancing the use of

the area along Chaopraya River. Pedestrian path along Chaopraya River should be in congruent with the landscape that enhancing the image of heritage building along Chaopraya River. Covered walkway to connect the heritage zone of the campus to the medical service area should be provided **(Figures 90&91)**. In Bangkok, it rains 5-6 months a year. A well designed covered walkway would be fit for the climate in Bangkok. The covered way would facilitate an access to the heritage site, medical service, academic area, and the hospital space along Chaopraya River. Covered way designing should be in sympathy with and facilitated patients flow and transportation in the patient service area **(Figures 90&91)**.



Figure 83: Covered way at Siriraj Hospital

(Source: Photos by Nantawat Sitdhiraksa, March 10, 2012)

☐ covered way in front of Mahidolvaranussorn building

☐ covered way in front of Mahidolbampen building

☐ covered way in front of Male Medical Student Dormitory

2. Supporting academic excellence

- 2.1 Promote heritage buildings uses as part to support the medical academic environment.
- 2.2 Promote heritage buildings uses as part of the excellence in research and teaching strategies.
- 2.3 Provide a quality environment that support staff and students in delightful, and enjoyable environment for further success in their research and study.

3. Engaging the community

- 3.1 Use the green area along the Chaopraya River to encourage interaction and the use of this public riverfront asset (**Figure 85**).
- 3.2 Promote the social responsibility of Siriraj Hospital by offering the community access to the campus through social and academic activities:
 - 3.2.1 The activities for community including short training course, and health promotion exhibition.
 - 3.2.2 Hosting occasional cultural events and festival, for example, sport and health promotion day, smoking-free-hospital promotion, or Loi-Kratong festival
 - 3.2.3 Encourage the use of the site outside the normal working and study hours
 - 3.2.4 Encourage the use of sport facilities of the hospital including the swimming pool, tennis court, basketball court, lawn, walkway for exercise to fit with the image of the Siriraj Hospital, the Health-Promoting-Medical-School.

In summary, the conservation planning focuses mainly on the heritage buildings and the park and green area along Chaopraya River and the Bangkoknoi Canal.

The aim of any plans for conservation of Siriraj Hospital is to protect the conservation value to promote, preserve, restore, adapt in use, and interpret the heritage buildings and the open spaces around the buildings to be more functional for healing, medical education, and recreation environment along with the holistic hospital strategies and plans of excellences in research, teaching, learning academic and social responsibility.

To preserve the historic values of the area along Chaopraya River, the physical investigation of the buildings and the existing surrounding conditions should be surveyed and documented in detail.

Because the hospital is enclosed two sides by the river and the canal, the management plan shall include annual flood protection plan and policy to preserve the historic value, the medical education, and the recreation values of the areas **(Figure 69)**.

Multidisciplinary team including, for example, hospital staffs, current and former students and alumni, hospital clients, community, archeologists, medical historians, architects, horticulturists, engineers should be recruited as part of the conservation management plan.

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Chapter 7

Guidelines for Change

Statement of the future conservation vision

The overall conservation management plan for heritage conservation at Siriraj Hospital site is as followed:

1. The main conservation management plan should be developed in a holistic manners and fit with the hospital policy.
2. Review, research and document the historical places and buildings of the hospital (**Figure 84**).
3. Assess the significance and value of the site.
4. Zoning the heritage significant area should be planned along with the development of advanced medical service area (**Figure 85**).
5. Survey the attitudes from multiple groups of hospital visitors, stakeholders, and community. Result of the survey would be beneficial to the conservation planning.
6. Management assessment of the buildings, and open space (**Figures 85, 86, 87&89**). Flood and fire prevention should be part of the conservation plan.
7. Consider adopting the Hoi An Protocols as a reference for conservation practice.
8. Develop continuous conservation strategies, visitor management strategies, and interpretative management strategies to be compatible with conservation plan.

The potential impacts:

Positive impacts:

1. Management of better and more organized hospital heritage environment conservation plan. The conservation plan will help with overall direction, and the congruence of management plan.
2. Promotion of use of the heritage site of the campus. This depends on the physical status, and the scale of the heritage buildings.
3. Adaptation of use of the heritage buildings. Most of the buildings originally were designed to serve patient care. The increasing load of patients care utilization, the advancement of medical

technology may unfit with the originality of the buildings. Adaptation in use, renovation, or restoration of the buildings would prolong the lively active use of the heritage buildings.

4. Promote and enhance social connection between medical staff, current and former students, and community within the campus and surrounding area of the hospital.

Negative impacts and risks threatening conservation:

1. There is a potential for financial burden of preservation which should be met by ensuring that the preserved buildings and setting will be fully integrated into core hospital business and management.
2. The area for new buildings development will be limited. It requires new development of advanced medical care to be provided in ways that will not impact adversely on the significant part of the hospital.

The threatening factors

Increasing load of patients and changing culture in medical service utilization both by means of leaning toward more sub-specialized advanced medical center, or decentralizing health care will affect the hospital design and layout in the future. There are no definite policy and criteria to conserve significant heritage building available at the present moment.

Expansion of the hospital, changes in modes of commuting to the hospital, for example, with the new Center of Medical Excellence on the new expanded area of the hospital, the hospital will have two new metro-train stations, and a direct fly-over road. This will promote the access to the hospital and affect the patient and visitor load. Zone planning, heritage zone planning, traffic flow needed to be revised **(Figures 85&87)**.

The hospital is located at the corner between Chaopraya River and Bangkoknoi Canal. It is on an annual floodable area. Although the hospital has already had a well systematic flood prevention plan by the initiation of the King in 1998. Regular monitoring and ongoing updating in flood prevention plan shall be listed as a priority in the conservation management plan. Lessons should be learned from the experience of the last great flood of 2011 **(Figure 69)**.

Currently there is no well organized conservation plan of the hospital. Loss of historical and significant buildings might threaten the significances and values of the hospital in the future.



Figure 84: Master plan of Siriraj Hospital, 2012



(Source: Master plan drawn by Kobkit Kledkrueamas, May 13, 2012)

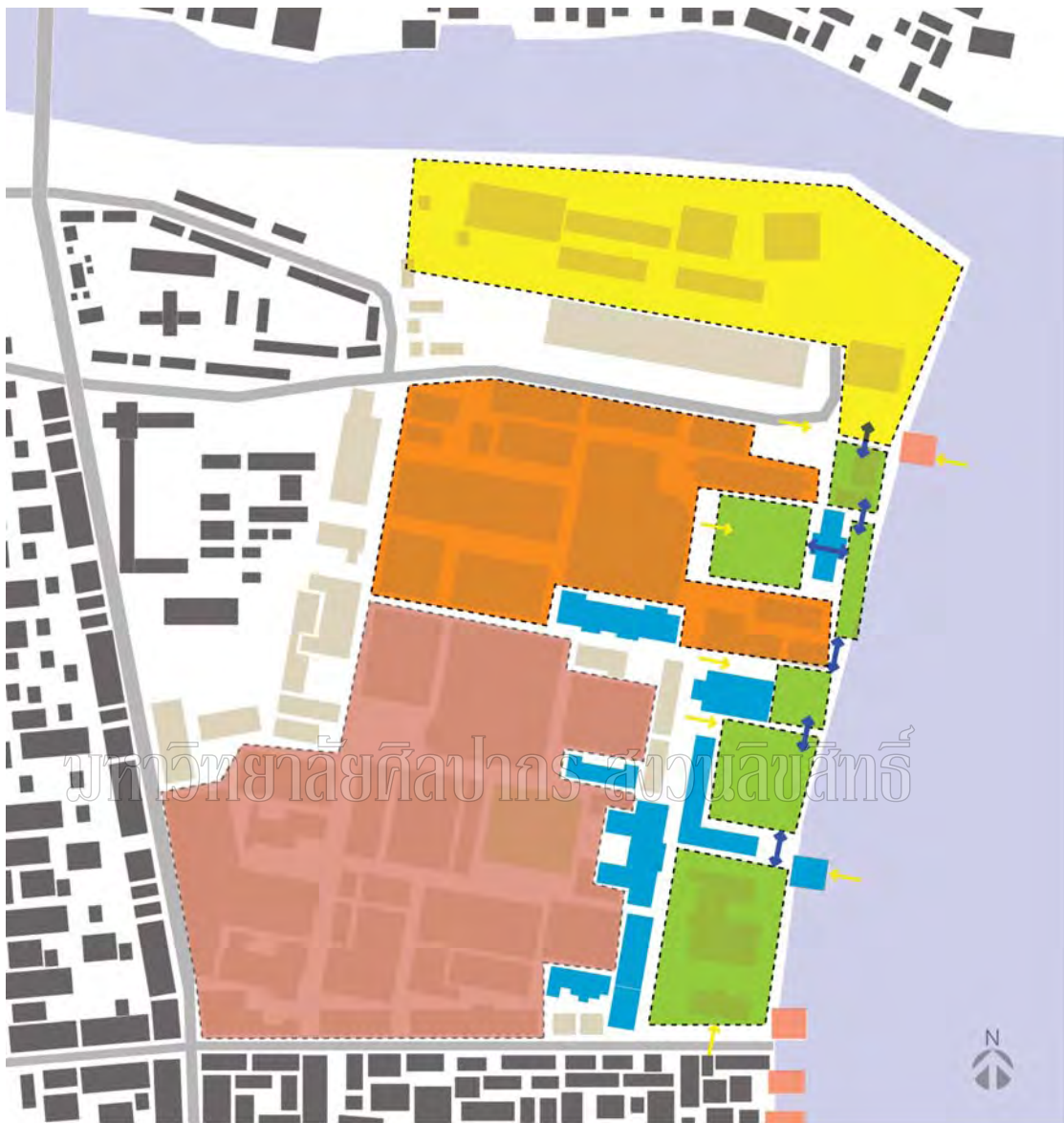


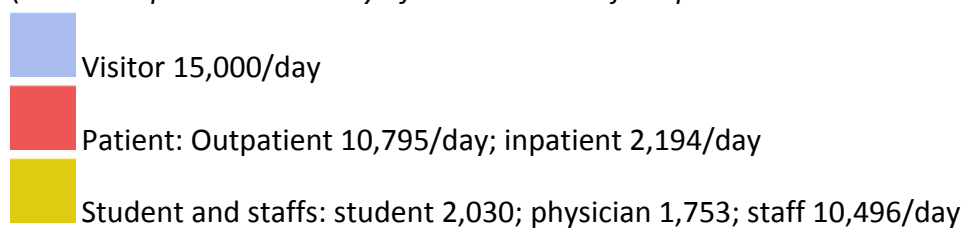
Figure 85: Proposed zoning for Siriraj Hospital, 2012. (Communication within recreation zone and between museum are shown by arrows)

- Patient-service zone
- Recreation zone
- Heritage zone
- Academic zone
- Museum zone

(Source: Master plan drawn by Kobkit Kledkrueemas, May 13, 2012)



Figure 86: Approximated people loading density per day at Siriraj Hospital, 2012
(Annual Report 2010 Faculty of Medicine Siriraj Hospital Mahidol University, 2011)



(Source: Master plan drawn by Kobkit Kledkrueamas, May 13, 2012)



Figure 87: Car traffic direction, parking areas, proposed patient drop-off zone, and proposed shuttle bus stop area at Siriraj Hospital. Cars should be removed from in front of the buildings by providing parking areas and schedule shuttle bus services to reduce traffic congestion in the hospital.

- P Parking building
- P Underground parking
- D Patient drop-off/pick-up zone
- B Shuttle bus stop area

(Source: Master plan drawn by Kobkit Kledkrueamas, May 13, 2012)



Figure 88: Current walls and fences at Siriraj Hospital, 2012

- Existing fences and walls at Siriraj Hospital
- Pedestrian path along Chaopraya river area

(Source: Master plan drawn by Kobkit Kledkrueamas, May 13, 2012)



Figure 89: Proposed walls, fences, and new pedestrian path along Chaopraya River for Siriraj Hospital

- Proposed new wall at Siriraj Hospital
- Proposed new pedestrian path along Chaopraya River area

(Source: Master plan drawn by Kobkit Kledkrueamas, May 13, 2012)

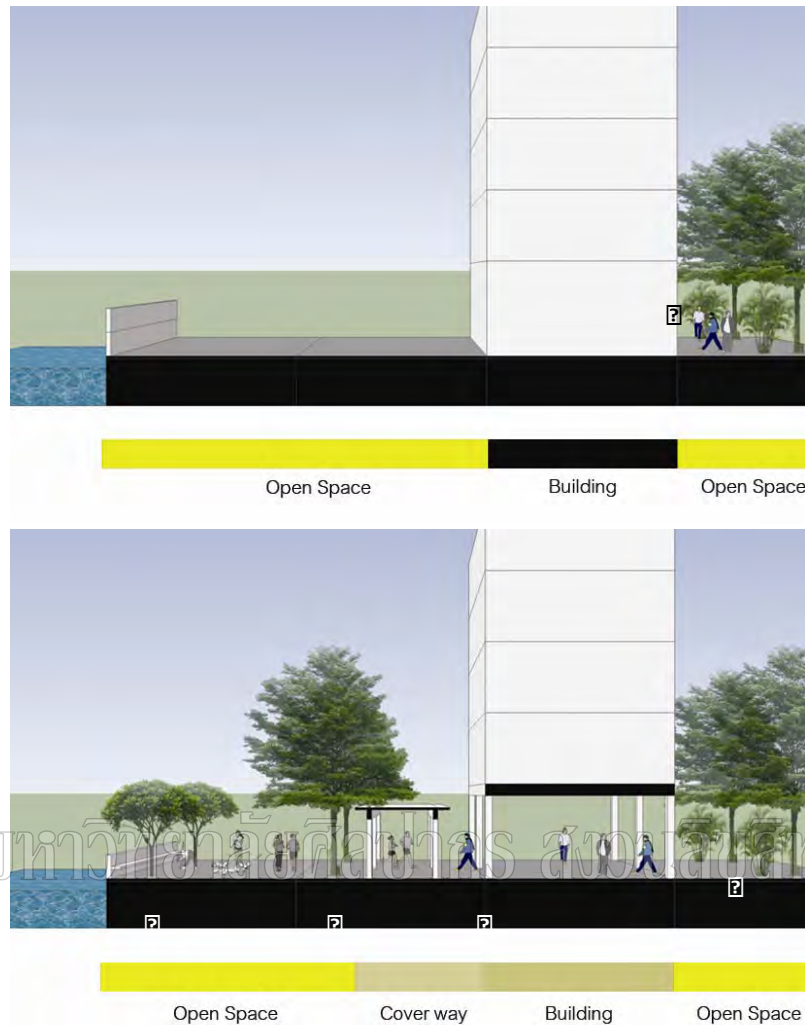


Figure 90: Proposed connection, expansion of visibility, and access passages between riverfront area, museum, recreation, academic, patient-service and heritage zones.

(Source: Drawings by Kobkit Kledkrueamas, May 13, 2012)

- ☐ At the present moment some buildings, for example, Prachatipatai Dormitory, obscure and disconnect the pedestrian path.
- ☐ One option is to open up the ground floor of some buildings to connect two walking paths together.
- ☐ Lower the wall height along the Chaopraya River bank and Bangkoknoi Canal to enhance the visibility and promotion of recreation area and heritage area along the riverfront space.
- ☐ Build new covered ways to enhance and promote utilization between heritage, recreation, and academic zone (**Figures 90&91**).
- ☐ Landscape and trees should be designed to sympathize with enhance heritage zoning and promote recreation and heritage zoning utilization.

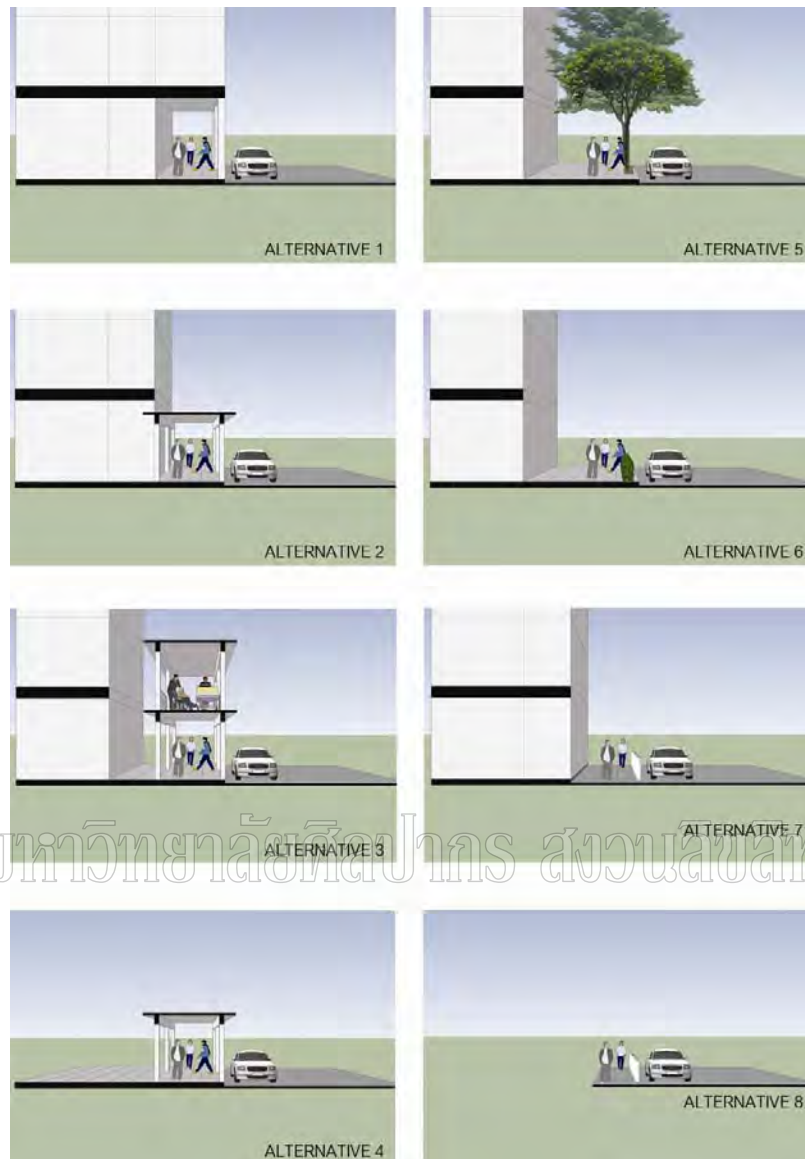


Figure 91: Proposed alternative options for path and covered way at Siriraj Hospital

1. Inside the building walkway
2. Extended walkway from the building
3. Covered way for patient separated but share the route with visitor covered way
4. For some open space, new covered way may be needed
5. Shading from trees should be enhance in some area
6. Using shrub to separate between pedestrian and car traffic
7. Using structures such as pole, lighting pole to between pedestrian and car traffic
8. Same as 7, but for the open space.

(Source: Drawings by Kobkit Kledkrueamas, May 13, 2012)

Chapter 8

Conclusion

Healthcare architecture has a long history. As a part of human culture, hospital design healthcare environments reflect a dynamic development as a result of multiple factors including changes in social and healing culture, medical knowledge, building technology, scientific achievement, pattern of healthcare utilization, and government policy. Continuous changes in provision of health facilities are in evidence from ancient healing culture, to the church-run facilities in the Medieval period, to the state-run hospitals in the Renaissance, to the evidence-base data collection in the Nightingale era, to the mega-hospitals in the current period of science and technology, and might be to the more informative technology, more residential, and more decentralized oriented healthcare in the future.

A case study of Siriraj Hospital as an illustration of healthcare heritage was undertaken by using the Hoi An Protocol for best conservation practice in Asia, section on monuments, buildings, and structures, as a guide to heritage hospital conservation. The significance, values, and authenticity of Siriraj Hospital were found to be in this research are as the followings:

Significance of Siriraj Hospital

Siriraj Hospital is significant for the following reasons:

1. Siriraj Hospital is the oldest modern general hospital and medical school in Thailand. Siriraj has been continuously used, changed, and developed over a period of 124 years.
2. Siriraj Hospital is the first of its kind in healthcare campus planning in Thailand. The setting and spatial layout of the hospital, its buildings, history and evidence of change due to medical, academic, and cultural reasons over the period of 124 years represents continuous changing in medical practice and healthcare culture as a result of advancement in medical science and changing social and healthcare culture.
3. Some particular buildings are heritage buildings and found to be significant for historical, social, and aesthetic values. They are: 1. Siriraj Pier (1923); 2. Mahidol-Bampen building (1924); 3. Anatomy building (1925); 4. The main administrative building (1925); 5. Mahidolvaranussorn building (1932); 6. Rajapattayalai auditorium (1952); 7. The Old OPD building (1953);

8. Prachathipatai dormitory (1955); 9. Vibullaksama building (1956); and
 10. Siam Commercial Bank I building (1959).
4. The hospital campus has a strong association with communities, including current and former students and staff, and surrounding residents.

The heritage value assessment of Siriraj Hospital

The heritage value assessment of Siriraj Hospital is as the followings:

- 1. Functional value:** Siriraj Hospital is the leading medical center and medical school. It was the first hospital and medical school in Thailand. The development prepares it for giving innovative best medical service to the community.
- 2. Education value:** Siriraj Hospital is a leading medical school and health care academic institute. Siriraj Hospital is a birthplace of Thai medical education. Thai medical education and medical school began and developed at Siriraj Hospital. There are also approximately 150 different health science courses running on the campus. Furthermore, there are six different medical related museums in the hospital and two more museums will soon be opened. All the museums at Siriraj Hospital are medical oriented museums.
- 3. Historic value:** Siriraj Hospital has a long standing continuous history for 124 years. Siriraj Hospital held a history of medical history of Thailand from the traditional Thai medicine to present modern medical practice. Siriraj Hospital illustrates the history of medical education in Thailand as well as Thai medical practices. Siriraj Hospital reflects the Thai medical history heritage, medical education heritage, and architectural heritage. Over the period of 124 years changes in the spatial layout of hospital and individual buildings reflect the changes in medical practices, medical education, and culture. It illustrates in the design of the individual building and the campus planing with a focus on a river, how the people of the growing city of Bangkok have depended on the river for transportation and on the hospital for healthcare at the highest level. Over the period of 124 years, 47 buildings have been demolished for various reasons. Ten buildings have been remained from the period up to 1960.
- 4. Social value:** Siriraj Hospital is a non-profit organization. The hospital today provides medical services to all Thais, regardless of their social classes and income. Other social values of Siriraj Hospital relate to the large cohort of current and former students and hospital staffs.

5. **Aesthetic value:** The area of the modern hospital used to be sites for palaces and mansions for princes and princesses in the past. The hospital was located on a unique location in a corner of the Chaopraya River and Bangkoknoi Canal, just across from the Grand Palace. In 2006, two buildings in the hospital received the ASA Outstanding Architectural Conservation Award by the Association of Siamese Architects under Royal Patronage including Rajapattayalai Auditorium (1952), and Siriraj Pier (1923) ("Outstanding architectural conservation award 2006 (รางวัลอาคารอนุรักษ์ศิลปสถาปัตยกรรมดีเด่นประจำปี 2549)," 2006). The significant heritage buildings at the site have values in architectural style and hospital design.
6. **Uniqueness value:** The most unique value of Siriraj Hospital is it was established by the King Rama V and has been under continuous patronage by the royal family. Prince Mahidol, the present king's father, was given the title of the father of Thai modern Medicine, because of his role in healthcare activities and medical education in Thailand.

By using the Hoi An Protocols as a guide on authenticity, the authenticity of Siriraj hospital has been discussed in terms of location and setting, form and design, use and function, and immaterial (intangible) qualities. Sources of information regarding authenticity were taken from publications, hospital and medical library archives, royal decrees, historical photos, historical maps, oral histories, websites, and field study. The multi-dimensional aspects of authenticity of Siriraj Hospital include its setting as a hospital on the bank of Chaopraya River, its long continuous use, 124 years, as advanced medical center and medical school, its layout relates closely with the historical access to the hospital by the river, the design and style of the hospital buildings, the ten heritage buildings the Hospital, the six medical related museums, the association of large cohort of current and former students and physicians, its functional, historic, educational, aesthetic, social and unique value, its emotional impact as a non-profit hospital provided medical services to all Thais, regardless of their social classes and income.

The conservation plan for Siriraj Hospital as a heritage site

The conservation plan for Siriraj Hospital as a heritage site was proposed in accordance with the significance of the hospital and the hospital strategies and plans as established in this research. The following principals were provided:

1. Enhancing the hospital environment

- 1.1 The tangible evidence of the historical associations from long and continuous use of the hospital as a medical center and medical school should be conserved. The values of the significant historical

buildings should be conserved along with their setting and surrounding area.

- 1.2 The design and orientation of the new building should be in sympathy with the spatial layout, views, and utilization of the significant heritage buildings. Zoning the heritage significant area should be planned along with the development of advanced medical service area **(Figure 85)**.
- 1.3 Listing of all hospital buildings according to their chronological development, physical states, past and current functions should be used in the developmental plan. The physical and heritage assessments of the building and sites should be also used as part of the developmental plan.
- 1.4 An interpretation of the heritage significance of the hospital should be provided in the form of plaque, or brochure on hospital history and significant buildings
- 1.5 Reconsidering the management plan of the hospital's fences and walls between buildings **(Figures 88&89)**.
- 1.6 Develop a master plan for landscape management at Siriraj Hospital, providing for the conservation of trees and green areas and encouraging views and the access to the significant heritage buildings.
- 1.7 Promote the utilization of the facilities and area along the river front. Reestablish the use of Siriraj Pier for special occasions, enhancing the landscape of the heritage buildings. Improve the physical environment of the historical heritage buildings.
- 1.8 Improving access, traffic, roads, and paths: Density load and carrying capacity assessment should be regularly monitored **(Figure 86)**. Relocate and manage the parking space to enhance more open space and providing a welcoming atmosphere around the heritage site of the hospital. Cars should be removed from in front of the buildings by providing parking areas and schedule shuttle bus services **(Figures 87)**.
- 1.9 Management of pedestrian paths along with the traffic management of the hospital. A new pedestrian path along Chaopraya River should be implemented to enhance the use of the area along Chaopraya River **(Figure 89)**. Provide a covered walkway to connect the heritage zone of the campus to the medical service area. The covered way would facilitate an access

to the heritage site, medical service, academic area, and the hospital space along Chaopraya River (**Figures 90&91**).

2. Supporting academic excellence

2.1 Use heritage buildings as part of the medical academic environment to promote excellence in research and teaching.

2.2 Provide a quality environment that support staff and students in delightful, and enjoyable environment for further success in their research and study.

3. Engaging the community

3.1 Use the green area along the Chaopraya River to encourage interaction and use by the public of the riverfront asset (**Figure 85**).

3.2 Promote the activities of Siriraj Hospital by offering the community access to the campus through various open social and volunteer academic activities.

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The potential impacts of the conservation plan

The potential impacts on cultural heritage values and medical amenity of the proposed conservation plan include the positive and negative impacts as the followings:

The positive impacts:

1. Improve and better organized hospital heritage environment. The conservation plan and overall direction should be congruent with the existing site management plan.
2. Promotion of the heritage values of the hospital campus.
3. Adaptation and continuing of use of the heritage buildings. No further building should be renewed without fully investigating the impact on the cultural heritage values of their removal.
4. Promote and enhance social connection between medical staff, cohort of current and former students and physicians, and the community within the campus and the surrounding area of the hospital.

Negative impacts and risks threatening conservation:

1. There is a potential for financial burden of preservation which should be met by ensuring that the preserved buildings and setting will be fully integrated into core hospital business and management.
2. The area for new buildings development will be limited. It requires new development of advanced medical care to be provided in ways that will not impact adversely on the significant part of the hospital.

The threatening factors

Overall, and consistent with the rapid advances in medical science, there will be increasing load imposed by patients, and an on- going changing culture in medical service utilization both by means of leaning toward more sub-specialized advanced medical centers, or decentralizing health care which will affect the hospital design and layout in the future. Until now, there are no definite policy and criteria to conserve significant heritage building available.

The hospital is located at the corner between Chaopraya River and Bangkoknoi Canal. There is a seasonal risk of flooding at the site. The hospital is located in the part of annual flood plain subjected to regular monitoring and ongoing

updating in flood prevention. Flood prevention plan should be listed as a priority in the conservation management plan.

Limitation of the study

Conservation of the long continuous use functioning hospital in the era of advanced medical technology and increasing patient's demand needs a thorough, well rounded, multidisciplinary investigation and planning. The limitations of this study are as the followings:

1. It is based mainly on literature and publication reviews. The sources of significance and value analysis are mostly the historical archive of the hospital. There were some oral histories, but there was no information from the main users, patients and their families.
2. Hospital heritage conservation is still not routine standard well-organized practice. Evidence-based data, research and recommendation are still in their early stage. There are also very limited comparative studies in this field.
3. The bias of the writer toward heritage conservation. There is not much data on the direction of the advancement of medical science, very limited healthcare policy for the country, no systemic data from public perspective and there is no heritage hospital conservation plan.
4. The study focused mainly on the history of hospital development and heritage conservation.
5. The writer wrote the conservation plan from the perspective of a medically trained person, with very limited experience in the heritage management.

However, the only minor advantage points are the writer studied, was trained, and has been working on the site for 24 years. Many of the assumed values are from the writer's own personal experience.

Concluding remarks

The conservation plan for Siriraj Hospital should be developed by a multidisciplinary team in an inclusive manner to produce a well-rounded conservation plan for a sustainable future for the hospital.

This study has been concluded without detailed consideration of number of matters, which emerged as potential research topics, but could not be pursued in the allotted time. The most interesting of this study was the evidence that the traditional design of buildings used in health care over the years have impacted on the health responses of patients. It appears to be likely that the evidence of health

improvements made the Nightingale hospital design reforms might be found to some degree in other design changes over the years.

This is an avenue of research which could be followed in the future by taking the experience of Siriraj Hospital and applying it to other health care places. Accordingly, this is recommended as a future subject of research, for example, the human response to the hospital environment, particularly the area of human response to different hospital building design and used it as a part of the significance and value of healthcare heritage assessment.

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Appendices

Appendix A

The Hoi An Protocols for Best Conservation Practice in Asia

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United Nations
Educational, Scientific and
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Regional Unit for Culture
in Asia and the Pacific

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HOI AN PROTOCOLS

FOR BEST CONSERVATION

แนวปฏิบัติหลักเพื่อการ
สงวนรักษาสีทึ่

PRACTICE IN ASIA

Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia

HOI AN PROTOCOLS

FOR BEST CONSERVATION

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Prepared for UNESCO by

Richard A Engelhardt
UNESCO Regional Advisor for Culture in Asia and the Pacific

Pamela Rumball Rogers
UNESCO Consultant for Archaeology

Adopted by the Asia-Oceania Region at the ICOMOS General Assembly in Xi'an, China in 2005

Hoi An Protocols for Best Conservation Practice in Asia: Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia

Bangkok: UNESCO Bangkok, 2009.

v + 53 p.

1. Cultural legislation. 2. International instruments. 3. Cultural heritage. 4. Cultural property preservation. 5. Asia and the Pacific.

Published by
UNESCO Bangkok
Asia and Pacific Regional Bureau for Education
Mom Luang Pin Malakul Centenary Building
920 Sukhumvit Road, Prakanong, Klongtoey
Bangkok 10110, Thailand

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์

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ISBN: 978-92-9223-242-9 (Electronic version)

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Printed in Thailand

The [Hoi An Protocols for Best Conservation Practice in Asia: Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia](#) were developed following the UNESCO Regional Workshop “[Conserving the Past - An Asian Perspective of Authenticity in the Consolidation, Restoration and Reconstruction of Historic Monuments and Sites](#)” organized in Hoi An, Viet Nam from 15 February to 3 March 2001. The following expert participants produced a set of practical guidelines for heritage conservation in Asia which form the basis for the [Hoi An Protocols for Best Conservation Practice in Asia: Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia](#):

- Lara Ariffin, Badan Warisan Malaysia
- Luigia Binda, University Polytechnic of Milan, Italy
- Andrea Bruno, Turin, Italy
- Mark Chang, Showa Women’s University, Tokyo, Japan
- William Chapman, University of Hawaii at Manoa, USA
- Mauro Cucarzi, Leric Foundation, Rome, Italy
- Rosamaria Durand, UNESCO Hanoi Office, Viet Nam
- Richard Engelhardt, UNESCO Bangkok, Thailand
- Sieglinde Gauer-Lietz, Brandenburg Technical University of Cottbus, Germany
- Ian Glover, University of London, United Kingdom
- Fernando Jorge da Silva, Lisbon, Portugal
- Beatrice Kaldun, UNESCO Bangkok
- Detlef Kammeier, Asian Institute of Technology (AIT), Bangkok, Thailand
- Paiman Bin Keromo, Department of Museums and Antiquities, Malaysia
- Hoang Dao Kinh, National Centre for Monuments, Hanoi, Viet Nam
- Lim Huck Chin, Ideogram, Kuala-Lumpur, Malaysia
- Laurence Loh, Laurence Loh Akitek, Penang, Malaysia
- Lim Lin Lee, Laurence Loh Akitek, Penang, Malaysia
- Nguyen Thi Thanh Luong, Hoi An Centre for Monuments Management and Preservation,
- Marcello Magoni, University Polytechnic of Milan, Italy
- Victorino Manalo, UNESCO National Commission of the Philippines, Manila, Philippines
- Ichiro Nagumo, Showa Woman’s University, Tokyo, Japan
- Rosli Hj. Nor, Malacca Municipal Council, Melaka, Malaysia
- Chatvichai Promadhattavedi, Prospace, Bangkok, Thailand
- Pamela Rogers, Archaeological Assessments, Hong Kong, China
- Roland Silva, ICOMOS, Colombo, Sri Lanka
- Andy Siswanto, Lestari Foundation, Jakarta, Indonesia
- Son Soubert, Constitutional Council of the Kingdom of Cambodia, Phnom Penh, Cambodia
- Nguyen Chi Trung, Hoi An Centre for Monuments Management and Preservation, Hoi An, Viet Nam
- U Tun Zaw, Department of Archaeology, Yangon, Myanmar
- Elizabeth Vines, McDougall & Vines Conservation and Heritage Consultants, Norwood, South Australia
- Tran Quoc Vuong, Hanoi University, Viet Nam
- Dong Wei, Department of Architecture, Southeast University, Nanjing, China
- Patrizia Zolese, Leric Foundation, Rome, Italy

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A

PREAMBLE

Background to the Preparation of the Protocols

The issue of authenticity and its practical application in heritage conservation is an ongoing discussion among experts and practitioners. The Nara Conference of 1994 and the resulting Nara Document on Authenticity have advanced the discussion, and broadened the issue and understanding of authenticity. The Nara Document underscores the importance of the cultural context for heritage conservation and compels us to link judgments of authenticity to a variety of sources of information that permit elaboration of the specific artistic, historic, social and scientific dimensions of the cultural heritage. However, practice has shown that in the day-to-day application of the concept of authenticity in restoration projects and planning it is still largely misinterpreted or wrongly applied.

To this end, UNESCO convened experts in conservation working in South, East and Southeast Asia¹ specialized in the various fields of archaeology, architecture, urban planning and site management at the UNESCO Regional Workshop “**Conserving the Past - An Asian Perspective of Authenticity in the Consolidation, Restoration and Reconstruction of Historic Monuments and Sites**”, which was held in Hoi An, Viet Nam from 15 February to 3 March 2001. The workshop was supported and sponsored by the Government of Italy and the Government of Viet Nam.

The objectives of the workshop were:

- To provide a forum for discussion of issues relating to authenticity in the consolidation, restoration and reconstruction of physical heritage sites in Asia, including historic towns, buildings and monuments as well as archaeological sites;
- To provide an opportunity to share and learn from each other’s professional experience;
- To establish a network to strengthen cooperation among the participants, and experts on heritage conservation.

The experts commenced a cross-cultural dialogue on the approaches to and methods of conservation by focusing on the concept of authenticity in conservation methodologies based on international standards and by examining the practical applications for heritage sites in the Asia region. They discussed the establishment and promulgation of regional standards of best conservation practice which will assure that the values inherent in the heritage sites of Asia are safeguarded and that their authenticity is preserved and truthfully explicated during the process of conservation, restoration, rehabilitation and subsequent maintenance and use. The concrete outcome of the workshop was a set of practical guidelines for the conservation of cultural landscapes, archaeological sites, monuments and historic towns, which form the basis of the Hoi An Protocols for Best Conservation Practice in Asia.

1. Experts from the following countries were present at the meeting: Australia, Cambodia, China, Indonesia, Japan, Malaysia, Myanmar, the Philippines, Thailand, Sri Lanka, and Viet Nam; as well as from Canada, Germany, Italy, Portugal, the United Kingdom, the United States and UNESCO. A list of expert participants is included on page III.

The formulation of the Hoi An Protocols by the experts in 2001 was done in the context of conventions, principles and declarations available at that time. Since the workshop, several new standard-setting documents concerning cultural heritage have been issued. The Protocols have taken into full cognizance these new documents as well as the established standards, and is therefore up-to-date with the current state of conservation best practice in the region. The references and standards most relevant to the Protocols are listed in Annex A.

The current version of the Hoi An Protocols is the outcome of a process of review and updating by a number of heritage professionals in the region, including leading ICOMOS members, that has taken place since 2001. While different drafts were made available to the public over the past years, this is the first official publication of the Hoi An Protocols.

The UNESCO Asia–Pacific Regional Workshop on the 2001 Convention on the Protection of the Underwater Cultural Heritage was held in Hong Kong SAR, 18 – 20 November 2003. The objective of this workshop was to promote the ratification of the Convention by member states as well as to bring together the leading authorities on underwater cultural heritage to share their knowledge. Among the many important topics discussed, the conservation of the authenticity of underwater heritage was highlighted. As a result of these proceedings, which are of extreme relevance to conservation in Asia, it was decided to extend the Protocols to include underwater cultural heritage.

The Significant Role of Cultural Heritage and its Diversity in Sustainable Development

In Asia, the physical, human-made components of heritage are not only inextricably linked to but also arise from the natural geography and environmental setting of their respective cultures and serve as the setting for more intangible expressions of cultural traditions. The experts underscored the inter-relatedness of practices for the conservation of physical heritage sites, intangible heritage and cultural landscapes.

The experts emphasized the importance of the preservation of heritage values represented in heritage sites as fundamental to the preservation of diverse and enduring cultural identities throughout the region, and pointed to the importance of the conservation of local, national and regional cultural resources as the basis for sustained and equitable social and economic development.

In November 2001, this notion of cultural diversity as a resource for sustainable development was enshrined in the Universal Declaration on Cultural Diversity as follows:

Cultural diversity widens the range of options open to everyone; it is one of the roots of development, understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence. (Article 3)

Increasing Threats within the Region

The experts noted with concern that the heritage of Asia is under-protected, as evidenced by the relative under-representation of cultural sites from the region inscribed on the World Heritage List, the erosion of the heritage fabric of Asian urban areas and by the relatively low contribution of cultural enterprises to the gross domestic product of Asian economies.

The experts collectively noted that the heritage of Asia is under increasing threat from a variety of forces linked to population growth, environmental degradation, rural-to-urban migration, urban redevelopment, industrialization and globalization of both the economies of the region and the traditional sociocultural fabric.

It was also recognized that both tourism and the very process of restoration and presentation for tourism purposes introduced new and more subtle threats to authenticity that are only beginning to be understood in the Asian context.

With regard to the conservation of heritage sites in many places in Asia, the experts noted that the unaddressed threats from development and modernization have too often resulted in negative consequences such as:

- **Dismemberment** of heritage sites, with resultant loss of integrity;
- **Dilapidation** and structural deterioration of the fabric of the region's built environment to the point where it can no longer adequately support the human uses for which it is intended;
- **Replacement** of original components with counterfeit and non-indigenous technologies and materials;
- **Loss** of the sense of place of the region's heritage sites, through inappropriate reconstruction processes which homogenize their unique characteristics; and
- **Disenfranchisement** of heritage from the traditions of community use.

Absence of clear definitions of what constitutes heritage, lack of regulatory controls, inadequate financing and incentives all currently compromise heritage conservation work in Asia. The experts concluded that these are symptomatic of the greatest danger to longer-term safeguarding of the heritage in Asia, which is inadequate public understanding of the need to conserve heritage and inadequate localization of stewardship responsibility over heritage resources.

Need for Effective Guidelines for Better Protection and Management of Cultural Resources

It was noted with alarm that these and other threats to the region's heritage threaten the survival and compromise the authenticity of the cultural heritage of Asia and endanger its truthful transmission to future generations. There is an urgent need to establish guidelines to assist political leaders and planners in the protection and management of the heritage and to establish standards of best conservation practice to guide the conservation, restoration and adaptive reuse of heritage properties.

Defining and Assessing “Authenticity” in an Asian Context

The experts further noted that in the application of the 1972 World Heritage Convention, the nomination, evaluation and periodic reporting processes all require an assessment of success in achieving conservation of the authenticity values of nominated and inscribed properties.

Considering these issues, the experts concluded that safeguarding of authenticity is the primary objective and requisite of conservation, and that professional standards of conservation practice everywhere in Asia should explicitly address issues of identification, documentation, safeguarding and preservation of the authenticity of heritage sites.

The experts however recognized that in Asia, conservation of heritage should and will always be a negotiated solution reconciling the differing values of the various stakeholders, and underscored that this “negotiated state of mind” is a value inherent in Asian cultural processes.

The Relevance of International Guidelines on Authenticity

The experts took due note that international standards of conservation practice already existed as codified in the 1972 World Heritage Convention and other UNESCO Conventions and Recommendations, as well as in the International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter), and the guidelines issued by UNESCO, ICOMOS and ICCROM for its implementation. The experts called attention, in particular, to the high continued relevance in Asia of the Venice Charter in guiding the conservation of, inter alia, historic structures built in non-perishable materials. The value and relevance in the Asian context of the ICOMOS Charter for the Conservation of Historic Towns and Urban Areas, drawn up to complement the Venice Charter, was also reiterated.

The experts duly noted that the provisions of the Venice Charter have been given culturally-specific application through the Nara Document on Authenticity, the provisions of which are particularly relevant to the establishment of standards of conservation practice relevant to the preservation of the heritage of Asia, and the integration of the preservation of the intangible cultural heritage together with the safeguarding of sites and monuments.

The experts also noted that within the region, there are national charters of conservation best practice which are extremely important for the establishment of national conservation standards and which can serve as models for other countries of the region in the development of their own national standards. In this regard, the experts called attention to the regional relevance of the provisions of the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter), in particular its importance in establishing guidelines for the preservation of a “sense of place” during the conservation process, and called upon ICOMOS and its national chapters to assist in the development of similar National Charters elsewhere in Asia.

Other examples of national charters include the *ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value* (1992), the *China Principles for the Conservation of Heritage Sites in China*, developed between 1998 and 2002 in collaboration between China’s State Administration for Cultural Heritage (SACH), the Getty Conservation Institute and the Australian Department of the Environment and Heritage (DEH), the *Indonesia Charter for Heritage Conservation* issued in 2003 by the Indonesian Network for Heritage Conservation and ICOMOS Indonesia and the *INTACH Charter for the Conservation of*

Unprotected Architectural Heritage and Sites in India (2004).

Reference was also made to the Suzhou Declaration on International Cooperation for the Safeguarding and Development of Historic Cities, 1998, which details priorities in the legal, planning and infrastructure needs of historic urban districts. Similarly, the International Roundtable of Mayors of World Heritage Fortress Cities which met in Suwon City, Republic of Korea in 2000 delineated management tool and action plan recommendations relevant to situations in some Asian cities.

Having noted these relevant precedents, the experts re-affirmed the provisions of the Venice Charter and endorsed the provisions contained in the Nara Document and, in principle, those of the Burra Charter, as relevant to the conservation of Asian heritage sites.

The *UNESCO Convention on the Protection of the Underwater Cultural Heritage* was adopted on 2 November 2001 by the Plenary Session of the 31st General Conference (Doc. 31C/24). This document and the Annex *Rules Concerning Activities Directed at Underwater Cultural Heritage* were the main points of reference for the addition of underwater heritage issues to the Protocols.

The Need for Regional Protocols

The experts agreed that regionally-specific protocols are needed to give practical operational guidelines for conservation practitioners working in Asia, thereby establishing high standards of best conservation practice for the region, with specific regard to the safeguarding of the cultural authenticity of heritage sites. These sites include archaeological sites, both excavated and unexcavated; monuments and other standing structures, whether ruined or intact; buildings and other structures of historic or other cultural, social, economic, political or ideological significance; architectural ensembles, historic urban areas and townscapes; underwater cultural heritage and landscapes and environments of historical, cultural and/or socioeconomic significance.

Therefore, the experts have established the following Hoi An Protocols for Best Conservation Practice in Asia, and call upon regional, national and local bodies, both governmental and non-governmental, as well as individuals, responsible for and/or engaged in heritage conservation work, to adopt these standards when undertaking any and all work to protect, conserve, restore or adapt heritage sites in Asia.

The Intended Audience and Implementation of the Protocols

The Hoi An Protocols have been prepared with several target audiences in mind:

- The custodians and managers, both public and private, of heritage properties and places in Asia;
- National, state/provincial and local governments and concerned departments involved in strategic and physical planning within heritage sites and in their environs;
- Non-governmental organizations (NGOs), community and voluntary organizations involved in the conservation of cultural heritage resources;
- Private sector commercial practitioners, including planners, architects, archaeologists, landscape architects and others;

- Teachers and trainers of heritage professionals, theorists and technicians;
- The tourism industry involved in development and promotion of cultural tourism in Asia; and
- Members of the general public with a vested interest in the conservation and development of their communities' cultural resources and assets.

The Protocols are intended to provide guidance at both the theoretical and practical level to all those making decisions and carrying out actions which will directly or otherwise affect the authenticity of heritage resources.

The Protocols are divided into five categories of heritage resource: *Cultural Landscapes*; *Archaeological Sites*; *Underwater Cultural Heritage Sites*; *Historic Urban Sites and Heritage Groups*; and *Monuments, Buildings and Structures*. Each category is clearly defined and the overall concepts which frame the approach to each type of heritage are stated. There follows identification of the main threats to preservation of these resources, followed by guidelines entitled "Tools for Preservation of Authenticity". These focus on tools for the identification and documentation of heritage and its authentic elements and tools and approaches to ensure its preservation. Preservation of the intangible aspects which form an essential part of every cultural resource is given special attention. The final section highlights the important role to be played in preservation by the community in which heritage is embedded. Special reference is made to the risks and benefits of cultural tourism to the authenticity of heritage sites and places in Asia.

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B

SIGNIFICANCE AND AUTHENTICITY

The cultural significance of heritage sites has been defined by the Burra Charter as the “aesthetic, historic, scientific, social or spiritual value for past, present or future generations” which is “embodied in the place itself, its setting, use, associations, meanings, records, related places and related objects.” The goal of conservation is to preserve this significance by ensuring that all interventions and actions meet the test of authenticity in all respects.

Understanding the relative degree of significance of heritage resources is essential if we are to rationally determine which elements must be preserved under any circumstance, which should be preserved under some circumstances and which, under exceptional circumstances, will be sacrificed. Degree of significance can be assessed on the basis of the representativeness, rarity, condition, completeness and integrity and interpretive potential of a resource.

Assessment of the significance of a place, site or monument should be carried out as a necessary preliminary to any conservation action. Significance assessment is the process of studying and understanding the meanings and values of places, objects and collections. It involves three main steps; firstly, analyzing the object or resource; secondly, understanding its history and context and thirdly, identifying its value for the communities which created and/or care for it.

The key to the process is the concept of authenticity which has become the universal concern of the conservation profession since the adoption of the 1972 UNESCO World Heritage Convention, which defines authenticity as the primary and essential condition of the heritage. The 1994 Nara Document on Authenticity reaffirms this by stating that authenticity “appears as the essential qualifying factor concerning values.”

Authenticity is usually understood in terms of a matrix of dimensions of authenticity: of location and setting; form; materials and design; use and function; and “immaterial” or essential qualities. Together these form the composite authenticity from which significance derives. The retention of authenticity is the aim of good conservation practice.

Dimensions of Authenticity				
Aspects	Location and Setting	Form and Design	Use and Function	Immaterial Qualities
		<ul style="list-style-type: none"> ■ Place ■ Setting ■ “Sense of Place” ■ Environmental niches ■ Landforms and vistas ■ Environs ■ Living elements ■ Degree of dependence on locale 	<ul style="list-style-type: none"> ■ Spatial layout ■ Design ■ Materials ■ Crafts ■ Building techniques ■ Engineering ■ Stratigraphy ■ Linkages with other properties or sites 	<ul style="list-style-type: none"> ■ Use(s) ■ User(s) ■ Associations ■ Changes in use over time ■ Spatial distribution of usage ■ Impacts of use ■ Use as a response to environment ■ Use as a response to historical context

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C

SOURCES OF INFORMATION ON AUTHENTICITY

The Nara Document on Authenticity stresses that in order to understand the authentic heritage values of a place we must employ credible and truthful sources of information. It states that “all judgments about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgments of values and authenticity within fixed criteria. On the contrary, the respect due to all cultures requires that heritage properties must be considered and judged within the cultural contexts to which they belong. Therefore, it is of the highest importance and urgency that, within each culture, recognition be accorded to the specific nature of its heritage values and the credibility and truthfulness of related information sources.”

A truthful source is not only a written record, but information or sources of information such as an archaeological excavation and the information it can provide, or wall paintings that show details of the life and technology of a certain period and area.

Credible sources of authenticity include, for example, a continuous craft tradition handed down generation by generation, an unbroken oral tradition, a ritual of which the practice is in the hands of hereditary specialists (i.e. a ritual in which the knowledge and skills are transmitted from the specialist only to his/her child).

Authenticity is measured by the credibility and truthfulness of the information/documentation on which the judgment is made. The following sources of information form the basis of a check-list which should be consulted to ensure that conservation practices preserve the authenticity of all these aspects of heritage resources.

Sources of Information on Authenticity					
Primary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
<ul style="list-style-type: none"> Place Primary documents [land deeds, census records etc.] Inscriptions Genealogies ancestral records Historical Photos Historical maps 	<ul style="list-style-type: none"> Oral histories Religious context Socio-economic survey of current users Demographic data Records of clan, neighbourhood and other groups 	<ul style="list-style-type: none"> Traditional indigenous knowledge Archaeological investigations Geophysical survey Remote sensing imaging Geometrical survey and photogrammetry 	<ul style="list-style-type: none"> Period artwork Contemporary literature Dated samples of materials and styles Traditional crafts manuals and building guides Patina 	<ul style="list-style-type: none"> Ethnographic records Ethnographic collections Experimental studies 	<ul style="list-style-type: none"> Spatial integrity Degree of Continuity of use Socio-cultural context Environmental Trauma
Secondary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
<ul style="list-style-type: none"> Chronologies Travellers' accounts Histories and commentaries Diaries, correspondence 	<ul style="list-style-type: none"> Analysis of continuity of use, occupation etc. Studies of craft organization Analysis of political consensus Social commentaries 	<ul style="list-style-type: none"> Quantitative and statistical analysis Laboratory analysis Dating methods Materials analysis Engineering and structural studies Mathematical modeling 	<ul style="list-style-type: none"> Artistic commentaries and reviews Stylistic analysis Study of comparative sites and resources 	<ul style="list-style-type: none"> Interpretative studies Application of models such as nearest neighbour analysis Studies of cultural antecedents 	<ul style="list-style-type: none"> Surrounding spaces Political context Economic Context of technological change

Examination of these and other relevant sources of information in terms of the matrix of the dimensions of authenticity above creates a palimpsest of overlaid dimensions of the site in a chronological context. These provide an overall picture to guide the conservation effort in preserving the continuity of the site in all its dimensions: form, function, place and essence.

D

AUTHENTICITY AND INTANGIBLE CULTURAL HERITAGE

Reference to the tables above will make it clear that not all the variables reviewed and not all of the sources of information reflect tangible, measurable phenomena. Many are ephemeral and reflect the importance of intangible aspects to our notions of authenticity, cultural diversity and sustainability, as underscored in the *Convention for the Safeguarding of the Intangible Cultural Heritage* (UNESCO 2003), the *Universal Declaration on Cultural Diversity* (UNESCO 2001) and the *Convention on the Protection and Promotion of the Diversity of Cultural Expressions* (UNESCO 2005).

The International Conference on “The Safeguarding of Tangible and Intangible Cultural Heritage: Towards an Integrated Approach”, held in Nara Japan in October 2004, stressed the coexistence or interconnection between elements of tangible and intangible heritage. It adopted a Declaration on an Integrated Approach (*Yamato Declaration on Integrated Approaches for Safeguarding Tangible and Intangible Cultural Heritage*) based on international case studies. Article 11 of the Declaration reads:

Taking into account the interdependence, as well as the differences between tangible and intangible cultural heritage, and between the approaches for their safeguarding, we [the conference participants] deem it appropriate that, wherever possible, integrated approaches will be elaborated to the effect that the safeguarding of the tangible and intangible heritage of communities and groups is consistent and mutually beneficial and reinforcing.

Most importantly, and of relevance to the stated aims of the Hoi An Protocols, is the acknowledgment that safeguarding techniques for tangible and intangible heritage are fundamentally different. Intangible cultural heritage is by definition not linked to specific monuments or places, but is stored in the minds of tradition bearers and communities and conserved in the continuity of practice. The techniques and methodologies employed to preserve intangible heritage must be culturally sensitive and flexible enough to make this distinction.

In this context, the following points are made regarding maintaining authenticity in terms of the intangible heritage of Asia:

- In Asia, the structuralist analytical approach towards assessing significance and maintaining authenticity that is characteristic of Western conservation practice needs to be nuanced by the metaphysical concepts which prefigure the construction of space throughout the Asia region. It should also be tempered by the region’s time-honoured traditions of practice. The Nara Document on Authenticity (1994) provides useful guidance on reconciling conservation practices of creators or custodians of heritage with internationally agreed-upon standards, as follows:

Responsibility for cultural heritage and the management of it belongs, in the first place, to the cultural community that has generated it, and subsequently to that which cares for it. However, in addition to these responsibilities, adherence to the international charters and conventions developed for conservation of cultural heritage also obliges consideration of the principles and responsibilities flowing from them. Balancing their own requirements with those of other cultural communities is, for each community, highly desirable, provided achieving this balance does not undermine their fundamental cultural values. (Article 8)

- Conservation practitioners should not overemphasize the authenticity of the materials or physical substance of a resource to the extent that they overlook other equally or even more important dimensions of authenticity. Particularly within in the context of living cultures the absence of the tangible elements does not mean that the phenomenon did not, or has ceased to exist. “In a number of living cultural traditions, what makes a relic authentic is less what it was (in form) than what it did.” (Dawson Munjeri, The *Notions of Integrity and Authenticity –The Emerging Patterns in Africa*)
- The immaterial dimension of authenticity (e.g. artistic expression, values, spirit, emotional impact, religious context, historical associations, sounds, smells and tastes and creative process) and sources of information about them are particularly important in regard to maintaining authenticity of cultural heritage in Asia.
- Tangible cultural expressions of cultural heritage have their origins in the expression of intangible culture. We need to look for the expressions of intangible cultural heritage to guide us towards preserving the tangible heritage.

Considering this, the congruence between the material and immaterial dimensions of authenticity lies in their continuity. In the best conservation practice, the practitioner’s objective should be to provide the form of stewardship for the resource that best ensures the continuity and long-term sustainability of all authentic attributes of the resource, be they material or immaterial.

E

SYSTEMIC THREATS TO AUTHENTICITY

We can understand the authenticity of our cultural heritage by examining the credibility of the sources on which the judgement of authenticity is based. Authentic cultural assets are passed through time and communities by un-interrupted transmission, evolving but retaining the essential qualities that make them authentic. Authenticity faces constant and unavoidable threats from the following sources:

1. Loss of Knowledge

Increasing globalization is resulting in a loss of traditional knowledge, particularly among the younger generations in the region. Skills which are required to create, maintain and present cultural heritage in an authentic manner are at risk. The diversity of these intangible knowledge forms must be mapped, evaluated and protected in order to support other preservation initiatives.

2. Urban Renewal

The social and economic pressures for renewal of the fabric of Asia's towns and cities are growing rapidly. They are fed by increases in property values in these areas which puts heritage buildings and precincts at a real and perceived disadvantage. Although residents may wish to retain the fabric and feeling of their traditional built environment, owners are under pressure to maximize the potential of their land and not the historical structures and spaces on it. The result is demolition of entire historical neighbourhoods, or at best, slow attrition as one building after another is replaced by modern, high-return development.

3. Infrastructure Construction

The speed and scale of engineering works in the region poses a threat to the authenticity of cultural heritage and its context. Major infrastructure works can impact heritage resources directly by damaging or destroying fabric, setting and buffer zones. Works that radically modify the landscape and environment can also do indirect damage to sites in many ways: for example by altering drainage and hydrology; increasing erosion, sedimentation and risk of land slips; changing visual envelopes and destroying symbolic connections between places and places and their settings.

4. Cultural Tourism

In the process of standardizing, modifying and commodifying cultural assets for use in cultural tourism there is a serious risk of loss of authenticity. The problem is that too often the "packaging and presentation" of heritage is carried out by the tourism industry for the benefit of its members and not by those responsible for the safeguarding of cultural heritage. As a result, both the physical fabric of a heritage property and its intangible aspects are trivialized and compromised.

When we promote culture for tourism we tend to make the mistake of promoting simple repetition or replication of cultural forms. The same dance is performed over and over again, repeated night after night for changing audiences of tourists. This repetition is not transmission and it results in the interruption of the process and the atrophy of cultural forms into marketable products.

5. De-contextualization

We de-contextualize our culture when we build theme parks around our historic monuments and we treat them as garden ornaments. We also do it with our intangible heritage when we put on dinner

dance shows and treat these expressions of art and ritual as some kind of dessert for trivial consumption. This de-contextualization of our culture is a very serious problem because it destroys the authenticity of cultural expression. Policies of preservation that have led us to look upon our cultural resources as tourist products are the reason for our relative lack of success in conservation. This is an attitude we must correct if we are ever going to succeed in placing culture where it rightfully belongs, at the foundation of development.

6. Compromising the Spirit of Place

All too often our conservation and adaptive reuse projects compromise aspects of authenticity of a heritage property, such as its original use (e.g. the conversion of a religious building into pubs and restaurants), spatial layout (e.g. the construction of high-rise buildings inside a low-rise historic precinct) or traditional materials (e.g. replacing traditional lime-based with cement-based renders). These interventions usually have negative impacts on the spirit of place.

Spirit of place conveys the cultural essence of a site encompassing the meanings of a place accrued through time and through its past and present uses. Expressed through the tangible built heritage, these intangible heritage values give the place its distinctive character. The spirit of a place resides in its authenticity, retention of which, as mentioned earlier, is an essential condition of heritage conservation. It is therefore imperative to first identify the authentic elements that define the character of a place and convey its spirit, and, second, to ensure that through the conservation process these elements are maintained, safeguarded and celebrated.²

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2. Adapted from Laurence Loh. "Conveying the Spirit of Place." *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2000-2004)*. UNESCO Bangkok, 2007.

F

PREREQUISITES FOR CONSERVATION OF ALL SITES

There are a number of basic prerequisites for safeguarding the authenticity of heritage sites that are common to all types of heritage sites in all parts of the world. They are:

1. Establish a knowledge base through investigation

Cultural heritage is a repository of knowledge. To ensure that the heritage property retains and realizes its potential as a knowledge resource, it is incumbent on the site manager to determine and investigate the different dimensions and aspects of the site's authenticity. Common issues to consider in this regard include:

- The need to use culturally appropriate, credible and truthful sources of information on authenticity
- The value of cultural mapping to provide scope and context and to establish a fundamental baseline for all other steps
- The benefits of rapid appraisal of site condition and the use of non-invasive techniques

2. Safeguard authenticity and assure sustainability of the heritage resource

While it is imperative that heritage properties are considered and judged within the cultural contexts to which they belong, as called for in the Nara Document on Authenticity, some other fundamental issues concerning the maintenance of authenticity should also be addressed, including:

- The need for assessment of carrying capacity of the site
- Design and enforcement of defensive regulations to protect heritage
- The need for planning to manage processes of change
- Creative financing and incentive mechanisms to aid conservation

3. Assess and mitigate impacts threatening the heritage resource

To safeguard the authenticity of heritage resources in the face of threats from development, disaster or other scenarios of external change and to negotiate a balance between the forces of change, progress and conservation in ways that maintain this authenticity and preserve the meaning of heritage to the community, a system of Cultural Heritage Impact Assessments (CHIA) should be implemented for all types of heritage sites. The fundamental principles for CHIA are:

- CHIA should be implemented as early as possible within the project cycle
- CHIA should be carried out by professionals in the cultural heritage field with training and experience in CHIA
- CHIA should include public consultation and provide for community involvement at all stages
- CHIA should provide for ways of mitigating potential impacts that may compromise the cultural resources

4. Ensure continuing life in the community for the heritage resource

In accordance with Article 5 of the *UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage* (1972), which encourages States Parties to the Convention to “adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community”, universal issues concerning the relationship between heritage sites and society which must be addressed at all types of heritage properties include:

- Definition of social aspirations for heritage
- Enhancement, empowerment and enabling of communities to participate in the conservation and sustainable exploitation of heritage resources
- Socialization of the conservation process
- Localization of conservation stewardship
- Inculcation of awareness and education among community, politicians, planners contractors/builders, tourism industry
- Highlighting of the benefits and dangers of cultural tourism

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G

ASIAN ISSUES

There are some issues which, although applicable to all types of heritage sites, are specific to or particularly relevant to the Asian context.

1. Cultural diversity and shared heritage

Many countries in Asia are custodians of important heritage sites reflecting ethnicities, religions and cultures different from those of the modern state. It is not unusual, for example, for Islamic nations to have within their borders valuable Hindu and Buddhist sites. The Nara Document on Authenticity states that cultural heritage diversity exists in time and space, and demands respect for other cultures and all aspects of their belief systems. It is therefore incumbent on modern states to preserve and protect the heritage of other religions with the same standards and rigor which they apply to their own.

Similarly, modern Asian states often incorporate indigenous and minority cultures with their own rich and valuable heritage. As stated in the Nara Document on Authenticity, in cases where cultural values appear to be in conflict, respect for cultural diversity demands acknowledgment of the legitimacy of the cultural values of all parties. States have a universal responsibility to conserve this heritage, with the cooperation of its owners. They must ensure that it is interpreted in a way that provides minorities with a sense of their inclusion and the rest of the world with a full and correct understanding of its sources.

2. Skills and capacity

Rapid modernization and urbanization in the region has resulted in the decline and, in some cases, loss of traditional building crafts, artisan skills and materials production. The traditional master-apprentice teaching system is breaking down throughout the region. There is an urgent need to provide support in these areas through training, institutional support and innovative approaches. Support should involve bringing these two groups together on-site and in traditional teaching environments and learning spaces.

Education for conservation professionals and site managers falls short of these requirements throughout most of Asia. Well-meaning attempts are made to preserve the heritage of the region but these cannot succeed without adequate background knowledge and professional training. Attention must focus on developing programmes relevant to Asia, with flexible duration, regional exchange and learning by best practice examples.

3. Heritage custodianship

Custodianship of heritage sites should, so far as possible, stay in the hands of traditional custodians who should be empowered and assisted to carry out authentic conservation.

“Responsibility for cultural heritage and the management of it belongs, in the first place, to the cultural community that has generated it, and subsequently to that which cares for it.”
(*Nara Document on Authenticity*, Article 8)

4. Infrastructure and traffic pressures

More than any other type of infrastructure development, the expansion of road networks and other infrastructure works associated with development in rural areas of Asia is impacting on archaeological sites, cultural landscapes and heritage monuments. It is important that a system of cultural impact assessments be developed for Asia to precede all infrastructure developments in order to identify threats to heritage and find ways to mitigate damage.

5. Disasters and risk-preparedness

The Asia region is vulnerable to a range of potential natural and man-made disasters which can impact severely on all forms of cultural heritage, including living or intangible heritage. In addition, experience has shown that post-disaster recovery can pose just as great a threat to heritage. Many post-disaster reconstruction measures have irretrievably compromised the authenticity of cultural heritage. Measures for risk preparedness as proposed by the *Kobe/Tokyo Declaration on Risk Preparedness for Cultural Heritage* of 1997 and reinforced by the *Kyoto Declaration 2005 on Protection of Cultural Properties, Historic Areas and their Settings from Loss in Disasters*, and as recommended by the ICCROM manual and training kit must be integrated into the cultural resource management policies of the region. These methods should be based on sustainable techniques and financial mechanisms that are sensitive to local skills and indigenous knowledge systems and that incorporate community participation. The importance of indigenous knowledge and participation of local communities in developing and implementing risk management plans was again highlighted during the *Thematic Session on Cultural Heritage Risk Management* at the 2nd World Conference on Disaster Reduction in Kobe, Japan in January 2005.

6. First Principles for Conserving Built Heritage in Asia and the Pacific

These approaches to conservation in Asia can be seen in an integrated way in successful heritage conservation projects such as those recognized by the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation. Such exemplary projects encapsulate a set of five powerful “first principles” that encapsulate the range of Asian conservation issues which have evolved and been validated through professional practice over the past two decades. They are:

- Principle 1: **Collective mapping of cultural space**, its hierarchies, symbolic language and associations is a prerequisite for appropriate and successful conservation.
- Principle 2: Tangible cultural expressions derive their origin, value and continuing **significance from intangible cultural practices**.
- Principle 3: **Authenticity**, the defining characteristic of heritage, is a **culturally relative attribute to be found in continuity**, but not necessarily in the continuity of material only.
- Principle 4: The conservation process succeeds when histories are revealed, traditions revived and meanings recovered in a **palimpsest of knowledge**.
- Principle 5: **Appropriate use of heritage is arrived at through a negotiation process**, resulting in a life-enhancing space.

Together these principles affirm a set of professional norms which have arisen out of a distinctive Asia-Pacific physical and sociocultural space, but which have universality in application. These norms are fully reflected in the Hoi An Protocols.

Details on these First Principles, as well as the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation, are provided in Annex C.

H

SITE SPECIFIC METHODOLOGIES FOR ASIA

I. CULTURAL LANDSCAPES

1. Definitions

A cultural landscape is a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, person or exhibiting other cultural or aesthetic values.

There are three general types of cultural landscapes, not mutually exclusive. The most easily identifiable is the clearly defined landscape designed and created intentionally by human beings. This embraces garden and parkland landscapes constructed for aesthetic reasons, which are often, but not always, associated with religious buildings and ensembles.

The second category is the organically evolved landscape, a relic or living landscape that results from an initial social, economic, administrative, and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features.

The final category is the associative cultural landscape. The value of such landscapes is in the powerful religious, artistic or cultural associations of its natural element rather than in its material aspects, which may be insignificant or even absent.

2. Framing Concepts

The experts consider that cultural landscapes arise from a long, continual process of interaction between humans and the natural environment. As such, they reflect organizing philosophies and perspectives of different cultures which must be understood and preserved.

Cultural landscapes are not static. Rather than protect the status quo, the conservation objective should be to identify, understand and manage, in a responsible and sustainable manner, the dynamics of those processes which influence their evolution.

Cultural landscapes in Asia are influenced by and imbued with value systems and abstract frameworks, such as cosmology, geomancy and feng shui, animism, as well as traditional, technological and economic systems. These systems must be identified and understood for the effective safeguarding of authenticity of the landscapes.

3. Threats to Preservation

The risks to cultural landscapes in Asia are often different from other parts of the world; they reflect a combination of specific environmental/climatic impacts, local pressures to upgrade the built and rural environment, and commercial development pressures.

Conservation of cultural landscapes must negotiate between the needs of authenticity and the economic imperative and potential realities of Asia.

It must also understand the implications of the particularly Asian combination of extreme weather and environmental conditions with existing levels of administrative preparedness, political will and technical know-how.

4. Tools for Preservation of Authenticity

4.1 Identification and Documentation

- (1) Identification and inventory of the components of cultural landscapes should include intangible aspects as essential elements, which in Asia are often integral to authentic meaning and sense of place. Documentation should combine historical research with intensive field investigation in order to fully record existing conditions within a landscape. The result should be a clear statement of what makes a landscape significant and how it can be preserved.
- (2) Methodology for documentation and approaches to cultural landscape preservation and management are presented in detail in such documents as the US National Park Service Preservation Brief 36: Protecting Cultural Landscapes, the *ICOMOS Florence Charter on Historic Gardens*, the report of the Asia-Pacific Regional Workshop on Associative Cultural Landscapes, the *Oxford Declaration on Landscape*, the *UNESCO Recommendations Concerning the Safeguarding of the Beauty and Character of Landscapes and Sites* (1962) and Volume 7 in the World Heritage Papers series entitled *Cultural Landscapes: the Challenges of Conservation*. There is, however, a pressing need for adaptation of international standards to more closely fit the needs of Asian cultural landscape conservation.
- (3) Cultural landscapes are comprised of multiple elements in a meaningful balance; decisions regarding conservation must aim to identify and preserve this complex and delicate balance and not destroy authenticity by stressing one component at the expense of others. A cultural landscape can include monuments; but whether with or without them, the landscape is the essential element requiring conservation.
- (4) Accurate and meaningful mapping of cultural landscapes is a crucial step in the conservation process, particularly where the term is not well understood or there are inadequate legal mechanisms for their protection. Whichever landscape mapping technique is adopted, collection and correlation of data requires a multidisciplinary approach and will include, as a minimum, consideration of earth sciences, biodiversity, visual and sensory perception, historical time mapping and cultural contexts.

4.2 Safeguarding Tangible Aspects

- (1) After documentation, it is essential that a preservation or management plan be designed which takes cognizance of those heritage values which give the cultural landscape significance. Preservation planning is required to ensure that the authenticity of cultural landscapes is preserved. A programme should be designed and implemented which includes the following components: historical research including period plans; inventory and documentation of existing conditions with plans; site analysis and evaluation of significance and integrity; development of a cultural landscape management plan; strategy for ongoing maintenance and preparation of a record of treatment and future research recommendations.
- (2) Management of risks must acknowledge and employ often inadequate/underdeveloped administrative and legal mechanisms for conservation existing in the region. Integration with existing statutory planning tools can therefore often be one of the most effective ways to safeguard Cultural Landscapes, or at least to ensure notification of potential destructive or damaging development proposals.
- (3) Dismemberment must be discouraged by practical means. Alternatives should be explored to minimize the effect of existing dismemberment, including such methods as replication, reconstruction, relocation, etc. and the introduction of legislation to control the appearance, scale and style of future building within a landscape.
- (4) Reuse of (parts of) cultural landscapes must be limited to uses that do not compromise any of the components which make them authentic.
- (5) The diversity of Asian cultural landscapes requires multi-disciplinary and inter-sectoral conservation initiatives, and therefore, all plans for conservation of cultural landscapes should arise from and involve the pertinent communities.
- (6) Science and technologies employed should include Asia – specific methods such as community ideas of natural balance and replication of cosmologies in the landscape.
- (7) Because it is a destructive tool, archaeological excavation should be carried out only after in-depth research and baseline study. It should be carefully designed to answer specific questions about a landscape. Overuse of small scale testing is destructive and should be discouraged as a research tool.
- (8) Emphasis should be placed on the use of non-invasive tools in the study, management and conservation of cultural landscapes, including the development of GIS programmes, remote sensing, aerial photographic analysis and cultural impact assessment.

4.3 Safeguarding Intangible Aspects

- (1) In Asia it must be recognized that many components of cultural landscapes are intangible and/or impermanent. As such, it is necessary to document and understand the organic relationships between the physical components of the landscape and the intangible practices and values which impart cultural significance to a landscape.
- (2) Sources of information must be credible at the local level and include material which is locally generated and is manifested in varied forms and media, such as myth, oral history, village records, etc.
- (3) The spatial integrity of a cultural landscape cannot always be sharply defined and can change over time. The landscape recognized as relevant by its inhabitants is that which

reflects the negotiated balance between environmental and cultural realms. This fact must be accommodated in planning management and legal protection.

4.4 Heritage and the Community

- (1) The concept of cultural landscape is relatively new to the heritage world as a whole and particularly to Asia. As such, public education programmes are essential to cultural landscape conservation.
- (2) The listing of World Heritage sites is just one aspect of engaging public awareness of cultural landscape issues. Ultimately, the idea of cultural heritage is rooted in a sense of place and a sense of self-identity. These should be promoted even in areas without World Heritage status.
- (3) Cultural tourism development of cultural landscapes is unavoidable; an important part of the preservation process is to inform visitors of the value of the landscape, the features which make it authentic and the responsibility of visitors to safeguard it. On-site education must be more than just historical narrative.
- (4) Asian cultural landscapes are frequently inhabited and or cultivated by local populations; it is important that many of the tasks of conservation be given to these communities, with appropriate training and supervision, in order that they can consolidate their own heritage.
- (5) The intention in conserving cultural landscapes is to safeguard them, not just as historical evidence, but as living systems and possible future templates for cultural development. Working landscapes should continue to be economically viable within the framework of authenticity.

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II. ARCHAEOLOGICAL SITES

1. Definitions

An archaeological site comprises any combination of structural remains, artefacts and ecological elements within a culturally modified soil matrix. A site may lie entirely beneath the surface or appear partially above it. It may be fully or partially excavated or it may be known only through textual reference or subsoil or remote sensing.

2. Framing Concepts

Archaeological sites are comprised of many components with conflicting preservation requirements held in a delicate balance by a soil matrix. There is also inevitable uncertainty regarding the nature and extent of buried archaeological deposits. The use of multiple dimensions of authenticity is therefore required. The significance and authenticity of archaeological sites can be assessed in terms of:

- the degree of our understanding of the probable limit and extent of the site;
- the degree of our understanding of the chronology of the site through stratigraphy and dating; and
- the extent to which the site has been encroached upon or damaged by agriculture, natural erosion, partial archaeological excavation and/or construction.

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3. Threats to preservation

- (1) The exact location and limits of archaeological sites are, by definition, often not clearly visible; as a result, sites are particularly at risk of encroachment and dismemberment with an inevitable loss of authenticity.
- (2) Archaeological sites are often located in places which had value in the past and are still regarded as valuable. This means there are often continuing and long-term pressures for use, often incompatible with conservation, of these locations. Examples include places of strategic military value, religious or cult value and coastal areas with development potential.
- (3) There is a danger that the inherent value and significance of an archaeological site will be judged on the basis of what can be seen above the surface of the ground. Under-valuing archaeology without a built or monumental element fails to recognize that authenticity and value can equally lie in the potential for a site to inform us about the past.
- (4) Archaeology can be a destructive science. Although it has the power to inform us about the past, it also has the power to rob us of evidence and deny us a second look. This potentially damaging aspect of archaeological practice must be acknowledged and understood by those who design, implement and authorize field programmes.
- (5) The traditional agricultural practices of Asia can impact negatively in many ways on archaeological sites. Excavation of soil from one area for use in other fields can destroy archaeological deposits and relocate material resulting in loss of context. Similarly, the

construction of terraces, bunds and channels as part of paddy fields or other field preparation may have direct impacts on buried remains, particularly on shallow archaeological sites. The regular alternation of wet and dry cycles associated with rice cultivation may also adversely affect archaeological deposits, particularly if they occur close to the surface. Artefacts may shift position, the soil matrix in which they occur can chemically change and the fabric of ceramics in particular can degrade. The effects on archaeological material of chemical fertilizers and insecticides are not fully understood; corrosion and decomposition of metal and ceramic fabrics may result.

4. Tools for Preserving Authenticity

4.1 Identification and Documentation

- (1) Regional and local survey methods which give as complete a picture as possible of the location and extent of archaeological sites are an essential first step in managing and preserving the archaeological record. Survey reconnaissance methodology is highly developed in many countries and yet still underutilized in Asia as a whole. This is due, in part, to the special requirements of survey in the tropics and semi-tropics where overseas methods cannot be employed. There is a need for a consensus on methods and standards for the region in order to expand the archaeological baseline for Asia.
- (2) The use of GIS (Geographical Information System) is highly recommended as it provides the ideal tool for collection, manipulation and interpretation of such baseline mapping data.
- (3) Non-invasive techniques such as aerial photograph analysis, remote sensing, chemical soil studies and photogrammetry should be employed whenever possible to acquire data regarding the nature and extent of archaeological sites without loss of site integrity.
- (4) Research, site documentation and archives written in local languages should wherever possible be made available in translation to make data available to a wide audience. Similarly, Western scholars and researchers should aim to translate as much of their work as possible into the relevant local language.
- (5) In order to maintain authenticity in conservation of an archaeological site it is important to build up sample collections of all building materials such as bricks, tiles, mortars and stone. These should be properly labeled, catalogued and stored in local museums or other designated locations.

4.2 Safeguarding Tangible Aspects

- (1) Support should be given to the introduction of comprehensive legislation on the preservation of archaeological sites. Such legislation must be predicated on an assumption of preservation *in situ* yet have the flexibility to integrate change and advanced research when required
- (2) Protective zoning of archaeological sites as areas of special scientific and/or heritage interest within existing planning legislation is another tool which, if enforced, can help protect sites and their buffer areas.
- (3) As stated above, GIS is a valuable conservation and site management tool. It has the additional advantage that it can be used to integrate archaeology into regional development frameworks. This allows archaeological potential to be mapped as a development variable.

- (4) Within sites, the concept of zoning can play an important role. The use of a hierarchical system of zones with different levels of protection acknowledges the different needs of the various elements of a site such as heritage and landscape protection zones, environment conservation zones, archaeological research zones and monument management zones.
- (5) Archaeological impact assessment should be a requirement when any type of infrastructure development is proposed near an archaeological site or in an area of archaeological potential. The assessment should focus not only on direct impacts which could adversely affect the site, but also on indirect impacts which can alter the micro-environment of the soil in which a site lies. Assessment should use a package of research and field techniques appropriate for the region in order to identify sites and to assess the impacts which development will have on them. Assessment should then recommend measures to mitigate unacceptable impacts, including, if necessary, complete preservation *in situ*.
- (6) A multidisciplinary approach is needed for a comprehensive reconstruction of the past from archaeological sites. Conventional archaeological methodology should be augmented with input from as wide a range of specialists as is applicable. Effective preservation of the authenticity of our archaeological sites will be assisted by having a broad understanding of the resources.
- (7) Custodians of archaeological sites must develop work plans, with the assistance of specialists, designed to preserve, maintain and present sites to the public. Work plans should include implementation schedules and designate those responsible for specific tasks. Detailed records should be kept of all interventions and processes carried out in accordance with the work plan.
- (8) There may be circumstances when reburial of archaeological sites is necessary in order to protect them from the elements and/or vandalism. Full documentation should be carried out before reburial and the lateral limits of site components must be clearly surveyed and marked on the new ground surface.
- (9) Support should be given in whatever way possible to the local and overseas training of staff from local cultural and museum institutions. Training should inculcate an understanding of the concept of authenticity and its relevance to local archaeological sites. Ways in which this authenticity can be preserved at a grass-roots level should be at the core of training programmes.
- (10) Looting and illegal excavation of archaeological sites to feed the illicit market for antiquities is a constant problem facing site managers. The planning for every archaeological site must include assessment of security needs and a commitment to a protective strategy based on community involvement, education and regular inspection.

4.3 Safeguarding Intangible Aspects

- (1) The authenticity of archaeological sites is directly correlated to their capacity to retain cultural memory of events, ideas, beliefs, or artistic and literary works of outstanding universal significance.
- (2) Most of any archaeological site is buried beneath the ground and only a partial excavated record is on view. Managers of sites must devise ways to preserve the “readability” of such remains and to maximize their potential to present an historical time-line to visitors, linking the past to the present.
- (3) The multi-period stratigraphy of soils, debris and building periods presents a complex palimpsest of time which must not be oversimplified by, for example, the reconstruction of

a site to one period ignoring all others.

4.4 Heritage and the Community

- (1) Emphasis should be placed on the educational function of the local museum or cultural offices in increasing the interest of the local community.
- (2) The trend in Asia for army bases or related military compounds and structures to be established on archaeological sites must be reversed.
- (3) Many archaeological sites in Asia have a continuing religious function with shrines, temples, pilgrims and festivals. Ways must be found to accommodate such uses within a conservation framework.
- (4) Archaeological sites can pose dangers to the public if they are not properly managed. It is important that potential risks and fragile elements be fenced or otherwise made inaccessible in order to protect visitors to the site and the integrity of the site itself.

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III. UNDERWATER CULTURAL HERITAGE SITES

1. Definitions

For the purposes of the *2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage*, underwater cultural heritage means all traces of human existence having a cultural, historical or archaeological character which have been partially or totally underwater, periodically or continuously, for at least 100 years such as:

- sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context;
- vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural context; and
- objects of prehistoric character.

All have been preserved by the matrix of water, sand and mud which ultimately overtook them or in which they came to rest.

2. Framing Concepts

It is acknowledged that the physical context in which underwater archaeology is embedded means that particular and exacting approaches and methodologies are needed to ensure retention of authenticity *in situ* and during excavation and presentation.

3. Threats to Preservation

- (1) Underwater sites are at risk from actions which affect the matrix in which they are held, altering the delicate balance that enables preservation. These actions can be natural (storms) or anthropogenic (dredging, river diversion changing inlet dynamics); and can result in chemical change/aerobic change or physical disturbance of archaeological remains.
- (2) Damage may be caused by uninformed fishermen and recreational divers who unintentionally interfere with archaeological deposits or alter the fragile environment at sites.
- (3) Underwater sites are at great risk from organized looting whether by individuals or commercial salvage companies seeking antiquities to sell on the international market.
- (4) Direct impacts on archaeological sites result from offshore development involving dredging, piling and other site formation works or for sand and gravel extraction.
- (5) Adjacent onshore activities and development can also pose threats to underwater cultural heritage by releasing sediment, burying sites under dumped dredging spoil, altering the chemical environment and/or introducing pollutants.
- (6) The commercial fishing industry threatens underwater archaeological deposits by trawlers scraping the sea floor.

4. Tools for Preserving Authenticity

4.1 Identification and Documentation

- (1) GIS is a particularly valuable tool for recording and protecting underwater heritage sites. It allows archaeologists and managers to record and assess the development of the programme and to monitor the status of sites. It gives excellent visual representation of numerical and visual data which can be of special value on underwater sites with limited access and visibility.
- (2) Limited use should be made of intrusive investigative methods, with an emphasis on survey over recovery. Sampling techniques employed must have minimal impacts and follow the ethic of least damage and reversibility of procedures. This is achievable, if expensive, with the substantial advancements being made in remote sensing technology.
- (3) The urgency is to document and protect, not to remove underwater cultural heritage; the goal is *in situ* preservation to maintain the delicate equilibrium of heritage resources in their matrix.
- (4) Underwater archaeologists must be the only persons authorized to plan and carry out underwater archaeological investigations. Oceanographers, salvage operators, dive tour operators, treasure hunters and others may have varying roles to play in discovering sites and managing them, but not in their recording and excavation.
- (5) The intertidal zone comprises the area between the levels of high and low water which is subjected repeatedly to periods of exposure and submergence. The occurrence of archaeological material in this area includes inundated land sites, hulks, remains associated with the wharfage of vessels and shipbuilding and deposits of artifacts lost during landings and unloading. Special methodologies must be adopted to locate and document these sites which are alternately land and underwater archaeology.
- (6) The recruitment of oil exploration companies to assist governments to locate underwater cultural heritage sites in conjunction with their work will be an important objective

4.2 Safeguarding Tangible Aspects

- (1) Special reference should be made to the *Annex* of the *2001 Convention on the Protection of the Underwater Cultural Heritage* to ensure the maintenance of authenticity during and resulting from archaeological excavation.
- (2) When an important underwater site is identified there is often an issue of whether or not to disclose its precise location to the public. Disclosure can result in looting and unintentional damage by amateur archaeologists and commercial divers. If site locations are going to be made public there must be some way to restrict access.
- (3) Cultural material removed from the seabed poses special conservation problems due to the matrix in which it has been preserved. Planning is needed at the earliest stages to provide controlled environments preserved and the necessary processing to ensure that the information encoded in these finds is.
- (4) The provision of professional training courses for marine archaeologists, including the many amateur divers who make important contributions, is of great importance if investigations are to be carried out in a way that extracts the most information in an environmentally responsible manner.

- (5) Management and maintenance of underwater sites is necessary to preserve their authenticity. Mechanisms should be put in place in the form of an advisory committee or management board to control access to the site before and during investigations.
- (6) Management will include assuring the stability and integrity of exposed material and the release of information to the public; maintaining a surveillance system, actively monitoring the site, and mitigating threats to the site by stabilizing or recovering artifacts and archaeological information. Exploratory site testing may continue. After fieldwork is completed decisions will need to be made regarding the best way to “seal” the site.
- (7) *In situ* preservation consists of covering exposed portions of the site to diminish deterioration and the likelihood of damage from storms and human interference. Occasional site monitoring would be needed.
- (8) The financial advantages of proper investigation and creative museum display of underwater finds can be substantial. When this potential is shown by example, the community at large can see the long term and widespread benefits of preservation as opposed to the immediate benefits to only a few which result from the sale of looted antiquities.
- (9) A dive permit system is one option for controlling the impacts of divers on underwater cultural resources. It is a legally endorsed “user pays” system that generates revenue for conservation but denies free access to identified sites on the seabed. Experience has shown that this type of control is more appropriate when most of the community is made up of non-local tourist divers.
- (10) Charter owners, who might otherwise work against preservation efforts, have been enlisted as official heritage inspectors. This strengthens efforts by creating another group authorized to administer legislation. They provide feedback on sites and are empowered to prosecute those breaking the law.
- (11) A well-designed public information programme yields long-term benefits. Interest in ongoing exploration and best practice recovery plus the results of analysis of previous data means that the public continues to return year after year to learn more about underwater heritage. Release of information stimulates further interest leading to an informed and eager public.
- (12) Investigation of the underwater archaeological potential of an area should be part of the Cultural Heritage Impact Assessment system. Any development or works planned for offshore, intertidal or coastal areas should be assessed for impacts that may occur on archaeology. This includes desk-based background studies, geophysical surveys to identify seabed anomalies, dive inspection to clarify anomalies, assessment of potential impacts and recommendations to mitigate impacts.
- (13) Preservation of underwater cultural heritage requires planning and land use zoning tools. The extension of existing coastal protection zones should include intertidal and offshore areas. The creation of zoning designations for sites of underwater cultural heritage significance should also be considered. Other planning tools include the application of restrictions on land use in areas adjacent to underwater sites; areas where site formation or major engineering works would impact on the stability of underwater environments.
- (14) Underwater wrecks often have an international dimension due to the origins of vessels and their cargoes. Projects should be developed between colonies and former colonial powers and between historic trading partners that relate to this shared underwater cultural heritage.
- (15) Specialized courses for divers in underwater archaeology such as those offered by the

Nautical Archaeological Society (NAS) Training Programme should be supported to inculcate safeguarding values in the diving public.

- (16) Declaration of legally enforced “Protection Zones” around wreck sites or other underwater archaeological sites, marked by buoys, piles or floats, to restrict the number of visitors to sites, prevent accidental damage and discourage looting.

4.3 Safeguarding Intangible Aspects

- (1) The tangible artefacts at underwater heritage sites often have significant intangible aspects which have to be taken into account in the conservation and interpretation process. Cultural values or historical values, especially in sites associated with important events or traditions in the past, give an added layer of meaning to the physical objects and may also give a sense of identity or continuity with current sea-going or maritime practices.
- (2) Appropriate presentation and interpretation of the intangible aspects of underwater heritage may be facilitated in some cases by the preservation of the tangible artefacts in-situ. Similarly, strong interpretation schemes may even reduce the need to excavate or salvage the site, which may unduly disturb the area.
- (3) A distinction can be made between underwater archaeological sites and memorial sites. The latter is defined as a relatively recent site where the dead still have immediate descendents who would consider excavation invasive. Such sites should be maintained and made available for viewing but should not be excavated.

4.4 Heritage and the Community

- (1) There is a widespread perception that maritime archaeology is the realm of the academic world only, with little benefit filtering down from the academic to the public sector. It is incumbent on heritage professionals to make underwater archaeology accessible to the public.
- (2) The stakeholders in underwater cultural heritage are a particularly wide and diverse group, often with conflicting interests that need to be resolved:
 - The general non-diving public who feel unable to understand their underwater heritage but are keen to have it meaningfully interpreted
 - The local diving community who are often unwilling to cooperate because they may be gaining from sale of artifacts and/or dislike of authorities interfering
 - Local fishermen who usually are the first to discover underwater cultural heritage but exploit them for economic gain
 - The recreational diving tourist who wants maximum experience in a minimum time period
 - Commercial salvage companies whose aims conflict with preservation
 - Commercial dive charter and tourism operators who need to see that there can be commercial advantages and long-term benefits from preservation of underwater cultural heritage
 - Government sector agencies – the greater the intergovernmental cooperation that exists, the greater the public service profile
 - Archaeologists whose main concern is to document, interpret and preserve.
- (3) The idea of offering rewards to fishermen and recreational divers for revealing the locations of underwater sites can be looked into. Rewards could be gauged on the state of preservation of the site in order to discourage looting.

- (4) Public display of findings is important to raise community interest. Exhibitions should be not only in museums, but also in tourist venues such as hotels to create a wider forum for all stakeholders to see the results of underwater research.
- (5) Display and interpretation of underwater cultural heritage needs to be approached both on land and underwater. Coastal wreck trails with lookout points and information boards can increase awareness and concern for maritime heritage. This type of remote visitation is to be encouraged. Underwater wreck trails should be laid out with waterproof information sheets available and site markers with information about sites and correct on-site behaviour.

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IV. HISTORIC URBAN SITES AND HERITAGE GROUPS

1. Definitions

An historic urban site or heritage group is made up of a number of related and spatially adjacent, or at least proximate, resources, all of which are individually of heritage value and/or which contribute to the overall heritage significance of the group.

2. Framing Concepts

The experts share the conviction that our historic urban sites form a rapidly dwindling resource under threat from economic development and change. Urgent action is needed to reconcile development and heritage and to integrate culture and sustainable development in a manner that retains the authenticity of historic urban cores. In this process attention must be paid to the special qualities, both concrete and abstract, which characterize the Asian urban tradition, and to their authentic preservation.

3. Threats to preservation

- (1) Threats to the preservation of Historic Urban Areas of Asian cities and towns come from various quarters. In particular, they face the loss of historic structures and replacement with new buildings as a result of economic pressures to develop valuable property.
- (2) Heritage resources in urban areas also face the slow decay of structural fabric due to lack of maintenance; as a result of shortages of funding, lack of interest and failure of owner/occupiers to appreciate the value of what may be humble components of a valuable urban assemblage.
- (3) There is a steady onslaught of pollution including chemical action on historical building materials, damage from vibration and settlement, changes in water levels and moisture etc. in the urban environment.
- (4) Heavy, uncontrolled traffic and polluting vehicles within and around historic urban areas pose a serious and immediate threat to the authenticity and integrity of heritage groups. Planning to reroute traffic, designate pedestrian areas, impose clean air policies and enforce a range of transport solutions should be a conservation priority.
- (5) The loss of traditional occupations and of the traditional economic – residential mix of the community which gave urban areas their authentic flavour. This includes the loss of artisan skills associated with traditional building construction and repair.
- (6) Development pressures related to tourism in an historic urban area pose a serious threat to a site's authenticity and integrity. Determining and respecting carrying capacity and development controls (such as zoning, land-use planning) should be conservation priorities.

4. Tools for Conservation of Authenticity

4.1 Identification and Documentation

- (1) Detailed documentation of urban morphology is a fundamental task. It must include recording and analysis of both the area's physical structure and its patterns of use, taking special care to distinguish both the palimpsest of historical patterns which make it significant and the current pattern. Documentation should also include details of access, infrastructure and transport within and near the heritage area.
- (2) Documentation should recognize the total ensemble including less significant vernacular architecture and not give priority to monuments and listed buildings. In this exercise, the type and credibility of sources of information of authenticity will be especially important to consider.
- (3) The temptation to separate small picturesque architectural ensembles from their larger context should be avoided; the process should aim to demarcate larger contiguous entities for conservation using historical social and economic contexts to define these entities.
- (4) Inventory at a minimum "core" level of all components of the heritage group, both physical and social, as well as all details of each component, recognizing that the specific "personality" of the site is to be found in the details. Several techniques of inventory may be employed including building survey, photogrammetry and GIS. The archive of this inventory constitutes one of the sources of information on authenticity of the site, informing conservation work.

4.2 Safeguarding Tangible Aspects

- (1) "Defensive" mechanisms such as planning zones or designation of historic precincts or special conservation zones with moratoria, or at least restrictions, on redevelopment can aid conservation of the integrity of historic areas.
- (2) Overall management plans are needed for historic areas to integrate conservation with urban planning and the provision of utilities and infrastructure. It is important to protect and safeguard the local sensibilities and Asian value systems of the inhabitants of these areas while planning for their conservation and upgrading.
- (3) Wherever possible, existing historic building stock should be conserved, upgraded and reused in sympathetic ways. The focus should be on assisting residents of properties to continue residential use. Continued residential use may not always be feasible or desirable, and former housing stock may need to be adapted for commercial or community use. This must not be done at the cost of displacement of populations and homogenization or commercialization of originally diverse precincts.
- (4) An historic assemblage is an organic entity and it will often comprise buildings representing different periods. No attempt should be made to restore all buildings to a single historic period; instead it is recommended that changes over time be made clearly visible so that the visitor can recognize the multiple layers and read the history of the group.
- (5) Heavy CBD (Central Business District) requirements should be directed into new development areas; no attempt should be made to try to cram such modern functions into historical areas beyond their carrying capacity.
- (6) It is important to identify and actively promote traditional and endangered local trades. The pattern of bazaars which makes up the ancient quarters of many Asian cities is in itself

a valuable heritage component. Planning and conservation must facilitate their continuing viability, where possible, in original buildings and locations.

- (7) The historic urban areas of most Asian cities have already experienced attrition; quarters or rows of historical buildings are interrupted by new, unsympathetic structures that compromise the heritage value of the assemblage. However, the replacement of modern intrusions with replicas of historical buildings or infill -buildings in traditional styles should be carefully considered.
- (8) Unlike discrete monuments or archaeological sites, living urban assemblages often have no institutional custodian. It is therefore important that an administrative and decision-making body be formed which combines local government, business and community representation with professional conservation and planning expertise. The function of this body is to plan long-term integrated conservation and urban improvement and to establish sustainable financing incentives and mechanisms.
- (9) Tourism offers opportunities for income generation for conservation efforts and for poverty alleviation within historic urban areas, if adequately managed. Tourism plans should be prepared which retain a mix of commercial and other uses, including residential, and do not allow tourist shops and facilities to dominate the historical precinct.
- (10) Any major infrastructure or development projects planned for urban historic areas or their environs should be preceded by a Cultural Impact Assessment, in order to identify any negative and cumulative impacts which may result.

4.3 Safeguarding Intangible Aspects

- (1) The elements that make the urban area recognizable, coherent and authentic are texture, streets, squares, blocks and buildings, in other words, the structure of space. Therefore, it is this structure of space which must be preserved as the skeleton of the conservation plan. Urban textures are the basic material for building a city and thus conserving a city. They include regularity of proportion, density, repetitiveness, grain and directionality.
- (2) The structure of space in an Asian urban setting is hierarchical: streets are ritual paths, squares are sacred or cultural places. In this structure of space the edges are linear elements which constitute the physical boundary of historic towns and frame the continuity of the entire urban fabric. Gates and sometimes buildings act as openings into this urban wall. The authenticity of both buildings and entire blocks is therefore paramount.
- (3) The historic urban fabric has evolved over centuries and is a reflection of the distinctive culture and value system of its residents. If the lifestyles and traditional characteristics are destroyed the conservation of the buildings will be nothing but a theatre prop, devoid of the flavour and value system that produced the special attributes of historic cities. In view of the needs of contemporary living and the evolving character of living cities, the focus on striking a balance will be paramount. Thus ongoing discussions and discourse transfer of the community's value system from one generation to another will be an important ingredient of the conservation strategy.
- (4) Preservation of the intangible cultural heritage of traditional towns requires that knowledge be transmitted from teacher to pupil and from master to audience. It is therefore important that authentic spaces and venues for transmission be set aside and protected; ritual spaces, institutions, schools, performance venues and other such spaces.
- (5) The traditional trades and inherited occupations of historic towns imbue the built environment and its spaces with life. These economic activities are integrally linked to social and familial

groupings and create a pattern of intangible life styles, tools and work environments which are reflected in the shape, plan and layout of the townscape. They should be documented, studied and supported as essential components of cultural authenticity.

4.4 Heritage and the Community

- (1) A high level of public awareness regarding the importance of historic urban heritage areas is a prerequisite for ensuring their safeguarding. The authenticity and integrity of such areas will be safer in the hands of those with a sense of pride as custodians and owners of unique heritage buildings.
- (2) Decision making regarding the conservation of historical urban areas should involve a wide range of stakeholders from administrative and political levels, the community, business and professional people in order to spread an appreciation of heritage values.
- (3) The economic future of urban historic areas is integrally tied to development of managed tourism. Cultural tourism creates new pressures on these areas which can only be mitigated by effective public-private cooperation between stakeholders. The UNESCO Lijiang Models of Cooperation for the Development of Sustainable Tourism in Asia and the Pacific supply an effective and regionally appropriate tool for engendering this cooperation.
- (4) Historic urban centres are living entities and those whose lives lend them vigour should be supported and enriched by the conservation process. Conservation professionals should work with community programmes and activists to educate the public about the value of their heritage and the ways in which they can be involved in and benefit from its preservation.

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V. MONUMENTS, BUILDINGS AND STRUCTURES

1. Definitions

This category encompasses individual built heritage resources and architectural complexes in their setting which are deemed to possess heritage significance and have been or will be listed or declared for protection and conservation.

2. Framing Concepts

The authenticity of monuments, buildings and structures is integrally linked to the temporal narrative embedded in their fabric. Understanding the chronological development of a monument and the multiple and complex structural, spatial and decorative layers which result is essential to the conservation of authenticity.

The experts hold that successful and authentic conservation of monuments, buildings and sites can best be achieved by giving them a contemporary context. They should be accessible to the community, both physically and in terms of interpretation and display.

3. Threats to Preservation

- (1) Individual monuments and complexes face numerous threats to preservation and authenticity including demolition or dismemberment in the face of development, structural decay due to disinterest and neglect and erosion of fabric as a result of pollution and environmental impacts.
- (2) Unintentional threats to authenticity result from inappropriate and misguided conservation efforts. The urge to beautify and improve the appearance of a building can lead to the removal of original elements and their replacement with new ones in comparable modern materials. The result can be, for all intents and purposes, a completely new and inauthentic structure.
- (3) The integrity of a monument can be challenged by loss of or damage to its historical setting. Encroachment by modern Asian cities on their monuments must be controlled by the implementation of planning legislation and byelaws. Similarly, the original setting of rural monuments should be documented and their boundaries researched and enforced to prevent their gradual erosion.
- (4) Renovation and reconstruction of monuments and historical buildings in order to legitimize regimes and to substantiate ethnic or religious claims is an unacceptable use of conservation efforts.

4. Tools for Preserving Authenticity

4.1 Identification and Documentation

- (1) Detailed historical research and documentation of past interventions and present condition of a building or monument should culminate in a statement of its significance, i.e. a description of those irreplaceable values which give it heritage meaning and which must be preserved throughout any subsequent interventions.
- (2) It is important to establish appropriate databases to serve as a baseline for use in the implementation of conservation projects which maintain authenticity. These data sets should include the following:
 - Environmental information
 - Grounds / soils information
 - Geological and seismic data
 - Historical information
 - Ownership details
 - Architectural details
 - Functions analysis
 - Stylistic analysis and description
 - Structural assessments (status, damage, mechanisms)
 - Materials assessments (characterization, decay, causes)
 - Archaeological materials
 - History of past interventions
- (3) All interventions carried out on monuments and buildings should be fully documented. All photographs, drawings and all notes, reports, analyses and diagnoses and other data gathered for a conservation project should be archived. Ideally, the final conservation report should be published in an authoritative scientific journal.
- (4) Samples of all original materials from the monuments such as bricks and roofing tiles taken from well documented and dated contexts should be collected for consultation when new materials are required for building conservation. Any new materials and mixtures used in conservation should be archived, with details of their use.
- (5) Minutes of all progress meetings held at the site should be archived along with monitoring records and any other accounts of works undertaken.
- (6) Decisions regarding the type and extent of intervention carried out as part of a conservation plan should only be taken after extensive research, expert discussion and weighing of conservation options. Intervention should be the minimum required to ensure the preservation of the heritage values and authenticity of a monument or building.

4.2 Safeguarding Tangible Aspects

- (1) Special reference should be made to the Burra Charter; this document is particularly relevant and meaningful with regard to maintenance of authenticity as part of the conservation of buildings, monuments and structures. The guidelines regarding preservation, restoration and reconstruction should serve as a basis for the decision making process.
- (2) Conservation of buildings and monuments should be carried out following a Conservation Plan designed to maintain the authenticity and integrity of the heritage resource. There are some basic components of such a Plan:

- The principle coordinator of a Conservation Project should be a conservation architect.
 - An expert team should be assembled (conservators, art historians, architects, archaeologists, material specialists, surveyors, soil specialists, engineers, laboratory experts, geotechnicians, etc.)
 - The work to be carried should be clearly defined and scheduled with responsible parties identified.
 - Investigation, analysis, diagnosis and design require the following: drawings, photographs, samples, laboratory tests, on-site testing and controlling, monitoring, working drawings, specifications, construction details, mixtures, execution control, etc.
 - Complete documentation of the building or monument is fundamental, including a detailed history of interventions.
- (3) A clear understanding is needed of the different levels of intervention available to conservation professionals and the criteria for selecting the appropriate minimum level in specific circumstances.
- (4) Restoration of a monument to a specific period or reconstruction should only be carried out in exceptional circumstances when it is required to reveal or recover the heritage value of a site. It must be based on careful research and not conjecture.
- (5) Relocation of a monument should only be considered as a last resort if preservation *in situ* is impossible. It should only be undertaken if a new location can be found which is sympathetic to the buildings period, form and function. The dismantling process should be overseen by a qualified conservation architect after exhaustive photographic, cartographic and materials documentation. The new site must be prepared before dismantling begins.
- (6) Reconstruction of lost buildings on the basis of existing physical evidence, of similarity to other buildings and historical research should only be considered in exceptional circumstances and with expert consensus. The result can only be new buildings in old form, with a resultant loss of authenticity.
- (7) Retention of historical building façades or features for incorporation into a modern structure should be discouraged as a conservation approach. The authenticity of a heritage site will rarely survive this sort of dislocation and alteration of setting.
- (8) Particular care must be taken if conservation involves introduction of new materials. Compatibility in the use of new materials is fundamental to maintaining authenticity. Several types of compatibility must be considered to ensure that new materials do not impact negatively on a monument:
- **Chemical compatibility:** the two materials should not react chemically (i.e. cement and sulfate) causing expansive phenomena
 - **Physical compatibility:** (i) the new and the old materials cannot have differing movement due to dilations under temperature variation. (ii) the iron content of new materials should not be much different from that of existing materials
 - **Mechanical compatibility:** The strength and stiffness of the new material should be equal to or lower than that of the original material.
- (9) All new materials and construction must be identifiable as such and not presented as original. In order to achieve this all added new materials should be stamped with the date of use and all newly constructed parts of a structure should be clearly differentiated from the original.

- (10) Practitioners should aim to establish regional guidelines for best practice in conservation of specifically Asian building materials and methods, such as earth building, local brick, carved wood, marble carving and inlay, mirror inlay, mural painting, etc. These should conform to international charters accepted by UNESCO, ICOMOS, etc. but focus on Asian needs. Support of traditional building crafts and guilds is an integral part of this process.
- (11) For much of Asia, moisture is a serious conservation issue. Conservation projects should establish moisture controls including measurement of moisture content and distribution and should undertake the design of measures to reduce moisture resulting from rain from above and absorption from below ground.

4.3 Safeguarding Intangible Aspects

- (1) Traces of the intangible heritage of the past which are embedded in a monument can only be deciphered and read if we understand the “language” or “code”. It is the responsibility of heritage managers to explain this historical code to visitors in a way that reflects the authentic values of the site.
- (2) A monument creates or defines a sense of place simply by virtue of its presence; an otherwise unexceptional landscape takes on special meaning by association. It is important that conservation planning includes this associated space and does not neglect the environs of monuments and important buildings.
- (3) The religious activity and/or sacred elements associated with many monuments, buildings and structures contribute to their authenticity. These symbolic aspects may have guided the original design of a monument and be built quite literally into its fabric. The structure may also have acted as a stage or backdrop for a range of sacred activity which changed through history. These associations must be identified through research and reflected in the conservation of the site.
- (4) In a similar manner, the dedicated use(s) for which a monument or building was originally designed play an important part in our understanding of its authenticity. We must identify these uses and how they impacted on the design and plan of a monument and ensure that this information is reflected in conservation and interpretation.
- (5) Knowledge and practices concerning nature and the universe are built into the fabric and design of a monument. A building can therefore be read as a book of knowledge and traditional craftsmanship and skills. Interpretation of a monument should describe these knowledge forms and not merely focus on the finished products.

4.4 Heritage and the Community

- (1) A sense of ownership should be inculcated within the local communities living in and around heritage properties. If residents come to understand the qualities which make their monument both significant and special, they will prize this authenticity and support efforts to preserve it.
- (2) While many monuments have continuing religious, community or other uses which give them a sense of authentic purpose, there are many which lie dormant after conservation is completed. Creative ways should be found to reuse monuments and historical buildings which are economically viable and yet sensitive to the preservation of authentic features and settings. A special focus is needed to show that social benefit can result from conservation by finding uses that bring the community into close rapport with historical properties.

- (3) A pool of artisans with skills in a wide variety of traditional building and decorative techniques is required for the conservation and continuing maintenance of monuments and historical buildings. Although the range of specific skills will vary across the region, many places share a serious shortage of such talent and many crafts and specialist skills are dying out. Efforts must be made to support these crafts and to supply training and apprenticeship opportunities at the local and national levels if authentic workmanship and design are to be part of conservation efforts.

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ANNEXES

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CONSERVATION CONVENTIONS, CHARTERS AND GUIDELINES**UNESCO**

- *Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention* (UNESCO, 1954)
- *Recommendation on International Principles Applicable to Archaeological Excavations* (UNESCO, 1956)
- *Recommendation concerning the Safeguarding of Beauty and Character of Landscapes and Sites* (UNESCO, 1962)
- *Recommendation on the Means of Prohibiting and Preventing the Illicit Export, Import and Transfer of Ownership of Cultural Property* (UNESCO, 1964)
- *Recommendation concerning the Preservation of Cultural Property Endangered by Public or Private works* (UNESCO, 1968)
- *Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property* (UNESCO, 1970)
- *Recommendation concerning the Protection, at National Level, of the Cultural and Natural Heritage* (UNESCO, 1972)
- *Convention concerning the Protection of the World Cultural and Natural Heritage (“World Heritage Convention”)* (UNESCO, 1972)
- *Recommendation concerning the Safeguarding and Contemporary Role of Historic Areas* (UNESCO, 1976)
- *Recommendation concerning the International Exchange of Cultural Property* (UNESCO, 1976)
- *Recommendation for the Protection of Movable Cultural Property* (UNESCO, 1978)
- *Recommendation on the Safeguarding of Traditional Culture and Folklore* (UNESCO, 1989)
- *Convention on the Protection of the Underwater Cultural Heritage* (UNESCO, 2001)
- *Universal Declaration on Cultural Diversity* (UNESCO, 2001)
- *Declaration concerning the Intentional Destruction of Cultural Heritage* (UNESCO, 2003)
- *Convention on the Protection and Promotion of the Diversity of Cultural Expressions* (UNESCO, 2005)
- *Vienna Memorandum on “World Heritage and Contemporary Architecture – Managing the Historic Urban Landscape”* (UNESCO World Heritage Center, 2005)

ICOMOS

- *Resolutions of the Symposium on the Introduction of Contemporary Architecture into Ancient Groups of Buildings* (ICOMOS, 1972)
- *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (“Burra Charter”)* (1978; latest revision 1999)
- *The Florence Charter (Historic gardens and landscapes)* (ICOMOS, 1981)
- *The Declaration of Dresden on the Reconstruction of Monuments Destroyed by War* (ICOMOS National Committee of the German Democratic Republic, 1982)

- *Appleton Charter for the Protection and Enhancement of the Built Environment* (ICOMOS Canada, 1983)
- *Charter on the Conservation of Historic Towns and Urban Area* (ICOMOS, 1987)
- *Charter for the Protection and Management of the Archaeological Heritage* (ICOMOS, 1990)
- *The Nara Document on Authenticity* (Japan Agency for Cultural Affairs, UNESCO, ICCROM and ICOMOS, 1994)
- *Charter for the Protection and Management of the Underwater Cultural Heritage* (ICOMOS, 1996)
- *Principles for the Preservation of Historic Timber Structures* (ICOMOS, 1999)
- *International Charter on Cultural Tourism* (ICOMOS, 1999)
- *Charter on the Built Vernacular Heritage* (ICOMOS, 1999)
- *Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage* (ICOMOS, 2003)
- *Hoi An Declaration on Conservation of Historic Districts of Asia UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage* (ICOMOS, 2003)
- *Teemaneng Declaration on the Intangible Heritage of Cultural Spaces* (ICOMOS International Committee on Intangible Cultural Heritage, 2003)
- *Seoul Declaration on Tourism in Asia's Historic Towns and Areas* (ICOMOS, 2005)
- *Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas* (ICOMOS, 2005)

Others

- *Athens Charter for the Restoration of Historic Monuments* (Athens Conference, 21-30 October 1931)
- *International Charter for the Conservation and Restoration of Monuments and Sites ("Venice Charter")* (2nd International Congress of Architects and Technicians of Historic Monuments, 25-31 May 1964; adopted by ICOMOS in 1965)
- *Kobe/Tokyo Declaration on 'Risk Preparedness for Cultural Heritage'* (International Symposium on 'Risk preparedness for cultural properties - development of guidelines for emergency Response', Kobe/Tokyo, 19-25 January 1997)
- *Istanbul Declaration on Intangible Cultural Heritage* (Third Round Table of Ministers of Culture, 2002)
- *Yamato Declaration on Integrated Approaches for Safeguarding Tangible and Intangible Cultural Heritage* (Japanese Agency for Cultural Affairs and UNESCO, 2004)
- *Kyoto Declaration 2005 on Protection of Cultural Properties, Historic Areas and their Settings from Loss in Disasters* (International Symposium "Towards the Protection of Cultural Properties and Historic Urban Areas from Disaster", Kyoto, Japan, 16 January 2005)
- *Recommendations of the Thematic Session on Cultural Heritage Risk Management* (2nd World Conference on Disaster Reduction, Kobe, Japan, January 2005)

GLOSSARY

Adaptation: Modifying a place to suit the existing use or a proposed use. (*Burra Charter* Article 1.9)

Assessment of significance: producing a succinct statement of significance summarizing an item's heritage values. The assessment is the basis for policies and management structures that will affect the item's future and will ensure retention of these values. (NSW Heritage Office)

Authenticity "depending on the type of cultural heritage, and its cultural context, authenticity": When applied to cultural heritage refers to the degree to which cultural values are truthfully and credibly expressed through a variety of attributes including, but not limited to:

- (a) Form and design;
- (b) Materials and substance;
- (c) Use and function;
- (d) Traditions, techniques and management systems;
- (e) Location and setting;
- (f) Language and other forms of expression;
- (g) Spirit, feeling and ritual;
- (h) Other internal and external factors.

(*Operational Guidelines for the Implementation of the World Heritage Convention* Paragraph 82)

Compatible use means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance. (*Burra Charter* Article 1.11)

Conservation: "All the processes of looking after a place so as to retain its cultural significance." (*Burra Charter* Article 1.4) "Conservation encompasses the activities that are aimed at the safeguarding of a cultural resource so as to retain its historic value and extend its physical life. There are conservation disciplines that address different kinds of cultural resources. All share a broad concept of conservation that embraces one or more strategies that can be placed on a continuum that runs from least intervention to greatest; that is, from maintenance to modification of the cultural resource." (*Parks Canada*) "All operations designed to understand a property, know its history and meaning, ensure its material safeguard, and, if required, its restoration and enhancement" (*Nara Document*).

Conservation plans: Plans setting out clearly the conservation needs, priorities and methodologies for a heritage property. They are used by custodians to guide their actions and the use of funds.

Cultural diversity: The manifold ways in which the cultures of groups and societies find expression. These expressions are passed on within and among groups and societies. Cultural diversity is made manifest not only through the varied ways in which the cultural heritage of humanity is expressed, augmented and transmitted through the variety of cultural expressions, but also through diverse modes of artistic and creative production, dissemination, distribution and enjoyment, whatever the means and technologies used. (*UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions* Article 4.1)

Cultural expressions: Those expressions that result from the creativity of individuals, groups and societies, past or present, and that have cultural content. (*UNESCO Convention on the Protection and*

Cultural heritage impact assessment: Systematic methodology for assessing potential impacts on heritage resources of proposed development or other actions. It is embedded in environmental legislation and carried out by heritage professionals who recommend and design mitigating measures to address impacts.

Cultural significance (*syn. cultural heritage value*): Aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the **place** itself, its **fabric**, setting, **use**, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups. (*Burra Charter* Article 1.2)

Cultural tourism: That form of tourism whose object is, among other aims, the discovery of monuments and sites. It exerts on these last a very positive effect insofar as it contributes - to satisfy its own ends - to their maintenance and protection. This form of tourism justifies in fact the efforts which said maintenance and protection demand of the human community because of the sociocultural and economic benefits which they bestow on all the populations concerned. (*1976 ICOMOS Charter on Cultural Tourism*)

Culture: Whole complex of distinctive spiritual, material, intellectual and emotional features that characterize a society or social group. It includes not only arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs. (*UNESCO World Conference on Cultural Policies, MONDIACUL, Mexico City, 1982*)

Fabric: "All the physical material of the **place** including components, fixtures, contents and objects" (*Burra Charter* Article 1.3).

Groups of buildings: Comprising groups of separate or connected buildings including towns or parts thereof which are noteworthy because of their architecture, their homogeneity, their place in the landscape, or historical, cultural, economic, social, political or ideological significance, whether abandoned, still-inhabited or newly-built.

Information sources: All physical, written, oral, and figurative sources which make it possible to know the nature, specificities, meaning, and history of the cultural heritage.

Intangible cultural heritage: The practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities, groups and individuals in response to their environments, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. The "intangible cultural heritage" is manifested, *inter alia*, in the following domains: oral traditions and expressions, including language; performing arts; social practices, rituals and festive events; knowledge and practices concerning nature and the universe; traditional craftsmanship. (*UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage* Article 2)

Integrity: "The health and wholeness" of a heritage resource. A resource can be said to possess integrity when the values for which it was designated are not impaired or under threat; they are effectively communicated to the public; and are respected in all decisions and actions affecting the site (Parks Canada).

Interpretation: All the ways of presenting the cultural significance of a place (*Burra Charter* Article 1.17).

Maintenance: "The continuous protective care of the fabric and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction." (*Burra Charter* Article 1.5)

Management plans: Plans setting clearly the short and long term priorities and methodologies to be used to monitor, maintain and conserve the significance and authenticity of a heritage property.

Meaning: What a place signifies, indicates, evokes or expresses (*Burra Charter* Article 1.16).

Monuments: Architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings, and combinations of these features.

Patina: The sense of age or passage of time as reflected in the layers of visible change to fabric of a building or object.

Period restoration: “The accurate recovery of an earlier form, fabric and detailing of a site or structure based on evidence from recording, research and analysis, through the removal of later additions and the replacement of missing or deteriorated elements of the earlier period. Depending on the intent and degree of intervention, period restoration may be a presentation rather than a conservation activity.” (*Parks Canada*)

Place: “Site, area, land, landscape, building or other work, group of buildings or other works and may include components, contents, spaces and views” (*Burra Charter* Article 1.1). Places may have a range of values for different individuals or groups.

Preservation: “Maintaining the fabric of a place in its existing state and retarding deterioration.” (*Burra Charter* Article 1.6) “Preservation encompasses conservation activities that consolidate and maintain the existing form, material and integrity of a resource. Preservation includes short-term protective measures as well as long-term actions to retard deterioration or prevent damage. Preservation extends the life of the resource by providing it with a secure and stable environment.” (*Parks Canada Preservation Guidelines*) “Preservation standards require retention of the greatest amount of historic fabric, including the historic form, features and details as they have evolved over time” (*Secretary of the Interior’s Standards for Treatment of Historical Properties*)

Reconstruction: Returning a place to a known earlier state and is distinguished from restoration by the introduction of new material into the fabric. (*Burra Charter* Article 1.8); “recreation of vanished or irreversibly deteriorated resources” (*Appleton Charter for the Protection and Enhancement of the Built Environment*).

Redevelopment: “Insertion of contemporary structures or additions sympathetic to the setting.” (*Appleton Charter for the Protection and Enhancement of the Built Environment*)

Rehabilitation: The modification, including adaptive re-use, of resource to meet various functional requirements such as safety, property protection and access while preserving the historic character of the structure.

Renovation: Refurbishing and/or adding to the appearance of an original building or elements of a building in an attempt to “renew” its appearance in keeping with contemporary tastes and perceptions of “conservation.”

Replication: The copying of an existing structure in order to maintain aesthetic unity and harmony.

Restoration: “Returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material;” (*Burra Charter* Article 1.7) “to reveal the original state within the limits of existing material...to reveal cultural values and to improve the legibility of its original design.” (*Management Guidelines for World Cultural Heritage Sites*)

Setting: “The area around a place, which may include the visual catchment” (*Burra Charter* Article 1.12). This includes natural and built aspects, fixtures and associated activities.

Sites: Works of human groups or individuals or the combined works of humans and nature and areas including archaeological sites, cultural landscapes planned or evolved over time through use or human events, environments of cultural significance, sacred geographies, and landscapes religious, artistic, historical or other cultural associations.

Statement of significance: The product of assessment of significance. It briefly summarizes an item's heritage value and clarifies why the item is important. The statement is an important part of the management of all heritage items and forms the basis for policies, management structures and all good heritage decisions which will affect the item's future. (*NSW Heritage Manual*)

Sustainability: The preservation and management of cultural heritage in such a way as to ensure that its fabric and values are safeguarded for the benefit of future generations.

Tangible cultural heritage: All resources that have some physical embodiment of cultural values such as historic towns, buildings, archaeological sites, cultural landscapes and objects.

Use: The functions of a place, as well as the activities and practices that may occur at the place. (*Burra Charter* Article 1.10)

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First Principles for Conserving Historic Built Heritage

Successful heritage conservation projects, such as those recognized by the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (see box), launched in 2000, reflect a consensus around a set of five powerful “first principles” guiding the conservation of the historic built heritage in Asia and the Pacific, which have evolved and been validated through professional practice over the past two decades. They are:

- Principle 1: **Collective mapping of cultural space**, its hierarchies, symbolic language and associations is a prerequisite for appropriate and successful conservation.
- Principle 2: Tangible cultural expressions derive their origin, value and continuing **significance from intangible cultural practices**.
- Principle 3: **Authenticity**, the defining characteristic of heritage, is a culturally-relative **attribute to be found in continuity**, but not necessarily in the continuity of material only.
- Principle 4: The conservation process succeeds when histories are revealed, traditions revived and meanings recovered in a **palimpsest of knowledge**.
- Principle 5: **Appropriate use of heritage is arrived at through a negotiation process**, resulting in a life-enhancing space.

Together these principles affirm a set of professional norms which have arisen out of a distinctive Asia-Pacific physical and socio-cultural space, but which have universality in application. These norms are fully reflected in the Hoi An Protocols.

Principle 1: Collective mapping of cultural space, its hierarchies, symbolic language and associations is a pre-requisite for appropriate and successful conservation.

Conservation professionals and students are taught that conservation work should begin with a thorough investigation of the building. By studying historical documentary evidence and *in situ* physical evidence in the building fabric itself, it is possible to come to an understanding of the evolved significance of the place and to identify character-defining elements of the site which must be conserved in the ensuing work.

Developing an understanding of the true spirit of place, and reflecting this understanding in the conservation process and product, is central to the mission of reanimating the heritage through conservation work. Only a truly participatory process, which is predicated on a broad-based cultural mapping exercise, can ensure a full understanding of a place. The mapping process reveals “which heritage is important”, “to whom” and “why”. It may identify heritage which was heretofore overlooked, or it may uncover other aspects or alternative readings of already-identified heritage. This sociocultural mapping process brings to light the heritage values which are inherent and often unspoken in a community, notably, social and spiritual values. On this basis, conservation work can be undertaken in an appropriate manner, with full cognizance of the issues at hand, adding a “how” dimension to the mapping exercise.

Beyond a purely technical approach to the research process, often dominated by the voice of the conservation expert, the UNESCO Asia-Pacific Heritage Awards winners bring in multiple voices, resulting in a collective mapping of cultural space, its hierarchies, symbolic language and associations. This allows for actualization of the principles espoused in the [2001 Universal Declaration on Cultural Diversity](#).

Principle 2: Tangible cultural expressions derive their origin, value and continuing significance from intangible cultural practices.

Tangible and intangible cultural expressions are interdependent. Any conservation project which privileges tangible over intangible values of a building risks stripping away the significance of the place, leaving only an empty shell.

Manifestations of intangible cultural heritage include oral traditions, performing arts, social practices, rituals, knowledge about nature, traditional craftsmanship and associations acquired through use. This living heritage provides not only the wellspring of cultural diversity, but in fact guarantees continuing expressions of creativity. Indeed, the [2003 Convention for the Safeguarding of the Intangible Heritage](#) makes provisions for the protection of tangible artefacts and cultural spaces which are associated with the manifestations of intangible cultural heritage. This allows for effective harmonization between the 2003 Convention and other international legal instruments, such as the World Heritage Convention.

Principle 3: Authenticity, the defining characteristic of heritage, is a culturally relative characteristic to be found in continuity, but not necessarily in only the continuity of material.

The Heritage Awards have shown that the conservationist's mantra of "do as much as necessary and as little as possible" is subject to interpretation in the context of cultural norms of the Asia-Pacific region. Anecdotal evidence illustrates that tensions can arise between conservation professionals who hold material authenticity sacrosanct and local stakeholders who call for renewing the material fabric to ensure the spiritual intactness of the place.

The [Nara Document on Authenticity](#), adopted in 1994, has articulated a middle ground which reflects a way of balancing the varying definitions of authenticity, reflecting diverse underlying values in the conservation process and product. The Nara Documents states that "It is thus not possible to base judgements of value and authenticity on fixed criteria. On the contrary, the respect due to all cultures requires that cultural heritage must be considered and judged within the cultural contexts to which it belongs."

The Nara Document further states that, "Depending on the nature of the cultural heritage, its cultural context, and its evolution through time, authenticity judgements may be linked to the worth of a great variety of sources of information. Aspects of these sources may include form and design, materials and substance, use and function, traditions and techniques, location and setting, spirit and feeling and other internal and external factors. The use of these sources permits elaboration of the specific artistic, historic, social and scientific dimensions of the cultural heritage being examined."

The Nara Document does not provide a license for cultural relativity, but rather, reaffirms the validity of a rational system for evaluating and consequently safeguarding various heritage values, one that is consistent within its own sociocultural system. In so doing, social, cultural and spiritual values may gain a foothold alongside artistic and historic values in the conservation process.

Principle 4: The conservation process succeeds when histories are revealed, traditions revived and meanings recovered in a palimpsest of knowledge.

In extreme, but increasingly common circumstances, the thread of continuity of a historic place has been frayed to the point that it is barely distinguishable. Left to the course of economic renewal and the tides of social change, the heritage and the values it embodies is often vulnerable to being erased or

subsumed into newer narratives which may not be self-reflexive, thus failing to incorporate the richness of a place's past into its present regimes of creating and recreating identity and knowledge. The judicious intervention in these cases through a conservation activity can result in revealing unique histories, reviving local traditions and recovering the meanings of the place.

The UNESCO Asia-Pacific Heritage Awards have recognized projects which have excelled not only in technical merit but also in the dramatic impact that they have effected, especially in the revival of traditions that are dying or have faded away. These projects do so in a way which does not impose one solitary reading of the place, freezing one particular narrative at a point in time, but rather by revealing a renewed understanding of the place in the context of other historical layers of meaning embodied in the building. In some projects, this *remembrance of meanings past* is accomplished in a quite literal yet effective manner by physically juxtaposing the layers of the building history over each other until the present day. In other projects, this recovery is a social process, which reaches back into historical traditions and revives the living core of the community by renewing social practices associated with place.

Principle 5: Appropriate use of heritage is negotiated, resulting in a life-enhancing space.

The projects which have won the UNESCO Asia-Pacific Heritage Awards have often been conducted by conservationists who also play an advocacy or activist role. With heritage conservation unfortunately being a relatively low priority on most political agendas in the Asia-Pacific region, the conservationist-activists have had to shoulder the task not only of ensuring professional excellence, but also of raising awareness of the multiple benefits of conserving heritage. The essential messages conveyed by these change agents include heritage as a fundamental cultural right, heritage as a building block for sustainable development and heritage as a shared resource for local stakeholders.

The success of such advocacy efforts is usually the result of a process of negotiation—revisiting the fundamental questions of “which heritage is important”, “to whom”, “why” and “how” it should be conserved. The cultural diversity of the Asia-Pacific region, embodied in multicultural influences dating back to its earliest periods of history, belies easy answers to these questions. Add to the debate, at the local level, the complication of state-mandated histories and definitions of heritage, and the process becomes very complicated indeed.

Seeing **value in the process of negotiation**, however, means recognizing the value in this cultural diversity and according respect to the full range of stakeholders. The projects that have been undertaken through this negotiation process in identifying the heritage, its values, its conservation and adaptive reuse have emerged all the stronger, ensuring greater social and political sustainability.

Building on Best Practices

Successful conservation projects, such as the UNESCO Asia-Pacific Heritage Awards winners, bring to light best practices in conservation of tangible heritage as inextricably linked to intangible heritage. As a whole, they add to the global scope of our understanding of the role of heritage conservation as a social development process. They demonstrate that good conservation practice needs to be grounded in an understanding of the place and its many values. These values of place, identified through a participatory cultural mapping process, should inform the conservation decision-making and process. The values-based approach to conservation practice yields a richly-nuanced end result—where tangible and intangible heritage are authentically conserved, and historic layers of meaning are revealed. Through the application of these “first principles”, we can ensure the long-term safeguarding of our cultural heritage, which form the core resources for sustainable development.

(This section is adapted from the opening essay entitled “First Principles for Conserving Built Heritage Best Practices from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2000-2004)” of the UNESCO publication *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2000-2004)*)

UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation

Throughout the Asia-Pacific region, the role of private individuals and institutions in safeguarding built heritage is paramount, as buildings and sites are largely in private or civic ownership. The **UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation** programme, launched in the year 2000, is a flagship strategy to recognize private sector achievements and public-private initiatives in successfully restoring structures of heritage value.

The UNESCO Asia-Pacific Heritage Awards programme was established as a means of identifying and showcasing the most successful best practices in built heritage conservation and adaptive reuse in the region. Through the programme, UNESCO encourages policies and practices which result in the preservation of the unique heritage values and historic significance of our communities, thereby paving the way for future projects both within the same communities and beyond.

Since the award-winning projects are mostly drawn from the private realm, they include a representative slice of the vernacular built legacy of the Asia-Pacific region. This focus on the everyday landscape underscores the broad mandate of UNESCO and the World Heritage Convention to foster an inclusive interpretation of heritage and nurture an ethic of conservation that extends beyond the hallmarks of high architecture to the living, and now threatened, traditions of vernacular building.

The selection process for the Awards programme is rigorous and is conducted annually by a panel of international experts in conservation architecture, urban planning, landscape design and heritage conservation, all of whom practice professionally in the Asia-Pacific region. Entries to the UNESCO Asia-Pacific Heritage Awards are examined in terms of the extent to which they demonstrate excellence in the following criteria:

- Criterion A: The articulation of the structure's heritage values in order to convey the spirit of place through the conservation work.
- Criterion B: The appropriate use or adaptation of the structure.
- Criterion C: The interpretation of the cultural, social, historical and architectural significance of the structure(s) in the conservation work.
- Criterion D: The understanding of the technical issues of conservation/restoration in interpreting the structure's significance.
- Criterion E: The use and quality control of appropriate building, artisan and conservation techniques.
- Criterion F: The use of appropriate materials.
- Criterion G: How well any added elements or creative technical solutions respect the character and inherent spatial quality of the structure(s).
- Criterion H: The manner in which the process and the final product contribute to the surrounding environment and the local community's cultural and historical continuum.
- Criterion I: The influence of the project on conservation practice and policy locally, nationally, regionally or internationally.
- Criterion J: The ongoing socio-economic viability and relevance of the project, and provision for its future use and maintenance.
- Criterion K: The complexity, sensitivity and technical consistency of the project methodology.

The UNESCO Asia-Pacific Heritage Award winners consistently demonstrate that technical achievement in conservation should be underpinned by a profound understanding of conservation as a social process. As such, the Award-winning projects not only set standards of technical excellence, but also make a significant impact by contributing to the local cultural and historical continuum.

All winning entries serve as best practice models in their understanding of the issues of conservation in relation to the cultural, social, historical and architectural significance of the properties. They foster community involvement and capacity-building, and have a catalytic effect on local restoration and conservation efforts. The process of conservation consolidates important structures while at the same time returning the properties, which are significant either by themselves or as part of an ensemble, to their place of pride within local communities.

(This section is adapted from the opening essay entitled "First Principles for Conserving Built Heritage Best Practices from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2000-2004)" of the UNESCO publication *Asia Conserved: Lessons Learned from the UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation (2000-2004)*)

Appendix B

Power-point Presentation for the Defense Examination

CONSERVATION OF HERITAGE HEALTHCARE ARCHITECTURE;

A CASE STUDY AT SIRIRAJ HOSPITAL, BANGKOK THAILAND

March 13, 2012

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์

**CONSERVATION OF HERITAGE HEALTHCARE
ARCHITECTURE;
A CASE STUDY AT SIRIRAJ HOSPITAL,
BANGKOK THAILAND**

March 13th, 2012

Nantawat Sitdhiraksa
Dept. of Psychiatry
Faculty of Medicine Siriraj Hospital
Mahidol University

Site map: Siriraj Hospital





5/11/2012

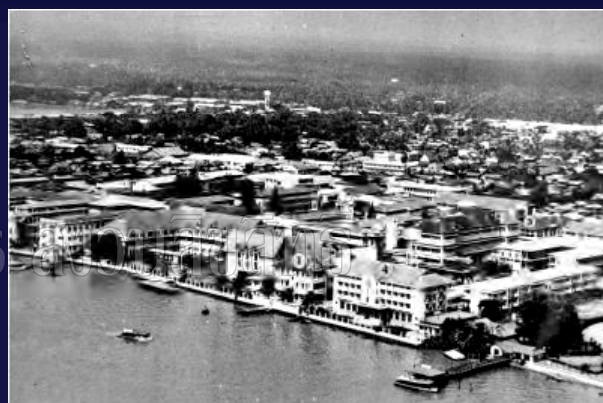
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Siriraj 1957 (55 yrs ago)

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Siriraj 1964 (48 yrs ago)

5/11/2012

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Siriraj Hospital: Basic Information

Construction date	26 th April 1888
Age	124 years
Area	57 acre
Owner	Mahidol University
Buildings	76
Staff	10,496
MDs	1753
Students	2030
Patients (out/inpt)/day	10795+2194 = 12,989
Visitors	15,000
Budget (Baht/year,2010)	17,741,000,000

Siriraj Hospital: Strategies and Plan

1. To be excellence in research
2. Teaching, learning, and academic excellence
3. Healthcare and service excellence
4. Internationalization
5. Administrative excellence
6. Social responsibility

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Siriraj Hospital: Philosophy



“ True success is not in the learning but in its application to the benefit of mankind ”

Prince Mahidol

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Origin of the study

- In the last 124 years, Siriraj has been through a continuous expansion, construction, demolition, replacement, and adaptation in use of the buildings along with the progress of medical technology and medical teaching
- Study and thorough investigation of the heritage conservation plan of Siriraj is necessary

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Significances of the problem

1. Siriraj is the oldest modern hospital in Thailand
2. Siriraj is the oldest medical school in Thailand
3. Siriraj is the landmark of Thai modern and traditional medicine
4. Siriraj is always under the royal patronage
5. Siriraj is a living healthcare specimen; the location, the history and the buildings are significant and valuable for Thai medical heritage

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Objectives

1. To study factors associated with significances, values of healthcare heritage at Siriraj Hospital
2. To propose a conservation guideline according to Siriraj's authenticity

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Methodolgy

1. Literature review
2. Analysis for authenticity by reviewing conservation charters
3. On site observing
4. Listing of heritage buildings

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Hypothesis

Conservation of the heritage values of Siriraj would be assured by being congruent with the hospital's strategies and plan, and based on a multi-dimensional interpretation of authenticity

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Literature Review

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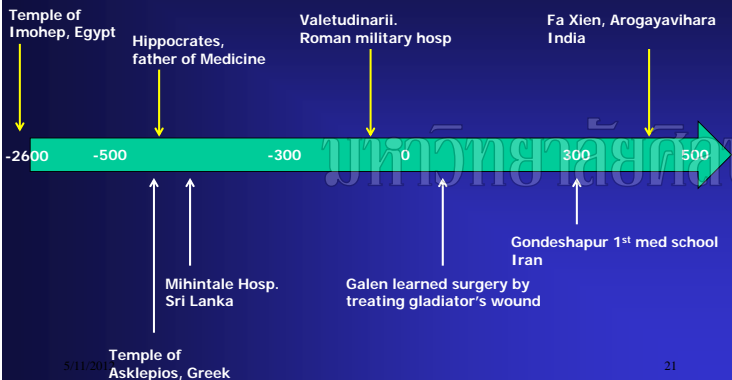
History of Healthcare Architectural design

- "Medicine arose from out of the primal sympathy of man with man; out of the desire to help those in sorrow, need and sickness". Sir William Osler, 1919
- Hospital is a symbol of community, deliverer of social welfare, and mechanism for coping with suffering, illness and death. Guenter Risse, 1999

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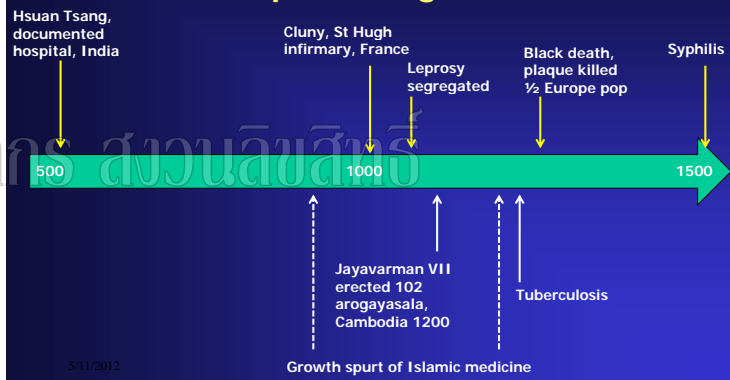
Medical knowledge and its impacts on hospital design (Ancient era)



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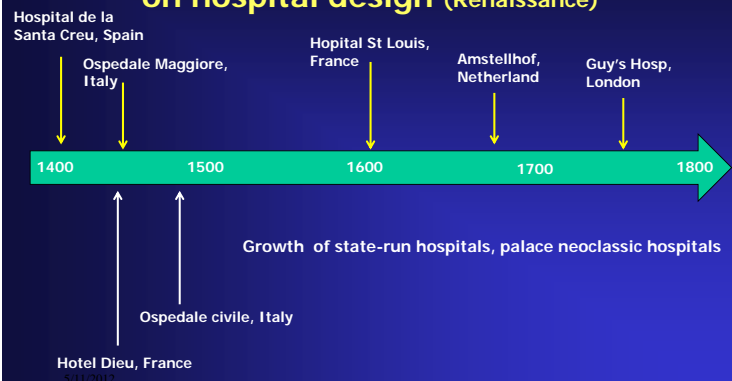
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Medical knowledge and its impacts on hospital design (Medieval)



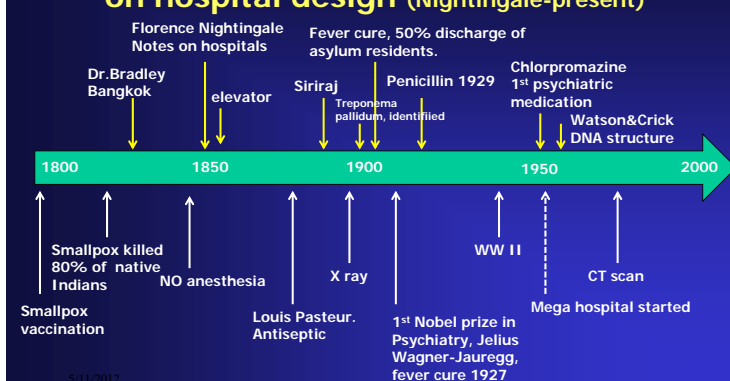
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Medical knowledge and its impacts on hospital design (Renaissance)



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Medical knowledge and its impacts on hospital design (Nightingale-present)



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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

1. The Ancient era
2. The Medieval period
3. The Renaissance
4. The Nightingale era
5. The Minimalist Megahospital
6. The Virtual Healthscape

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

1. The Ancient era

- Egyptian: magic, temple of Imohep
- Greek:
 - temple of Asklepios, god of healing
 - Hippocrates; father of Medicine 460-375 BC: 4 humors theory of disease
 - First medical school in Gondeshapur; prescriptions were diet, exercise, and very limited medicine

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

1. The Ancient era

- Roman; military hospital (veletudinarian)
 - Galen, 130-200 wrote books of anatomy, physiology, surgery, clinical medicine
 - Still no hospital, home doctor visit
- Mihintale, Sri Lanka, 4 century BC, perhaps the oldest hospital in the world.
- Fa Xian (399-414), Hsuan Tsang (602-664) wrote about arogya-vihara in India

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

2. The Medieval period (5th-15th century)

- Christianity; house of mercy: more spiritual than physical comfort. Hospital had small rooms connected to the church
- Islamic medicine and hospital (800-1500) were well organized and very advance; Bagdad, Cairo, Tunisia, Morocco, Granada
- Jayavaraman VII (1200), Ankor Cambodia built 102 hospitals(arogayasala) around his kingdom

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

3. The Renaissance (14th-17th century)

- Church hospital; Big hall hospital with altar, poor ventilation and waste discharge
- As the hospital became bigger; emergence of checker board and pavilion-type hospital
- Physician started to practice at the hospital

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

4. The Nightingale era (1820-WWII)

- Pavilion style hospital: hospital reform; need for fresh air and cleanliness, natural light, ventilation, heating system
- The mortality rate dropped from 42% to 2 % by Nightingale recommendation, with no antiseptic invention
- Nightingale influenced on hospital design over the next 100 years

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

5. The Minimalist megahospital (WWII-present)

- ❑ Hospital form changed from pavilion style to monoblock or polyblock hospital
- ❑ Supported by building technology, elevator, mechanically ventilated system
- ❑ Hospital becomes bigger and taller

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History of Healthcare Architectural design

Verderber S and Fine DJ 2000: 6 waves in hospital design

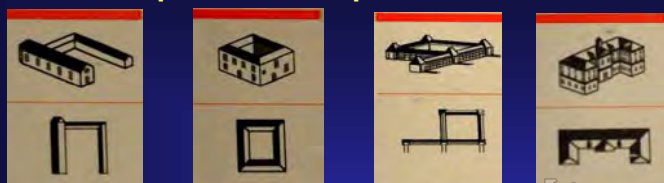
6. The Virtual healthscape era

- ❑ Decentralized, residentialist, patient-centered healthcare
- ❑ Healthcare becomes more to outpatient clinics and community based service
- ❑ IT technology could nullify the scale and concentration of the minimalist megahospital

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Development of Hospital form (PAPHE)

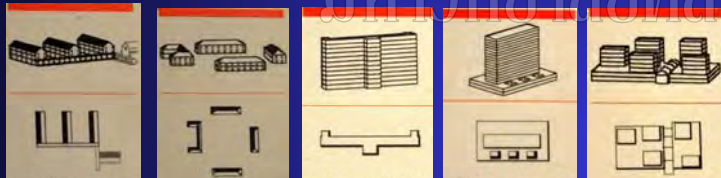


Hopital type halle

Maison hospital

Hopital classique

Palais H.



Pavillon en peigne

H. pavillonnaire

H. monobloc

H. tour sur socle

H. polybloc

Present et avenir du patrimoine hospitalier europeen

Trend of the contemporary health landscape

Verderber S and Fine DJ 2000: 6 trends in contemporary health landscape

1. Home and the health village
2. Functional deconstruction and residentialist
3. Self > provider determination
4. Sustainable health landscape
5. The natural environment & health architecture
6. Interdisciplinary aspects of health architecture

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Disease burden measured in Disability-Adjusted Life Years (DALYS)

Estimate 1990

Projection 2020

Rank	Cause	% total	Rank	Cause	% total
1	Lower respiratory infections	8.2	1	Ischaemic heart disease	5.9
2	Diarrhoeal diseases	7.2	2	Unipolar major depression	5.7
3	Perinatal conditions	6.7	3	Road traffic accidents	5.1
4	Unipolar major depression	3.7	4	Cerebrovascular disease	4.4
5	Ischaemic heart disease	3.4	5	Chronic obs pulmonary disease	4.2
6	Cerebrovascular disease	2.8	6	Lower respiratory infections	3.1
7	Tuberculosis	2.8	7	Tuberculosis	3.0
8	Measles	2.7	8	War	3.0
9	Road traffic accidents	2.5	9	Diarrhoeal diseases	2.7
10	Congenital abnormalities	2.4	10	HIV	2.6

In females and developing countries unipolar major depression is projected as becoming the leading cause of disease burden

Murray CJ, Lopez AD. The Lancet 349,1997

Humanized health care

Howard J 1975

1. Inherent worth of human being
2. Irreplaceability of individual
3. Holistic selves
4. Freedom of action
5. Status equality
6. Shared decision making and responsibility
7. Empathy
8. Positive effect

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Consideration of Heritage

Significance of Siriraj Hospital

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Significances of the problem

1. Siriraj is the oldest modern hospital in Thailand
2. Siriraj is oldest medical school in Thailand
3. Siriraj is the landmark of Thai modern and traditional medicine
4. Siriraj is always under the royal patronage
5. Siriraj is a living healthcare specimen; the location, the history and the buildings are significant and valuable for Thai medical heritage

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Heritage Value of Siriraj

1. Functional value
 - ❑ Leading modern medical center
 - ❑ Leading medical school
2. Education value
 - ❑ Medical science academic center
 - ❑ Medical museums
3. Historical value
 - ❑ Landmark of Thai modern medicine and medical school
 - ❑ Siriraj and the royal patronage
 - ❑ Buildings, location & setting

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Heritage Value of Siriraj

4. Social value
 - ❑ Social responsibility ; to promote health and well-being of the public and individuals
 - ❑ Current and former students
5. Aesthetic value
 - ❑ Location and setting of the hospital
 - ❑ Buildings; 10 buildings built before 1960
6. Uniqueness value
 - ❑ The constant royal patronage
 - ❑ Prince Mahidol; father of Thai modern medicine

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History of Evolution and Change at Siriraj Hospital

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History of evolution: Siriraj

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History of evolution: Siriraj

1950 1980 2012



1960 Physiology bldg 6,525 m²

2011 Srisavarintira bldg 45,828 m²

2012 SIMC 165,270 m² SIMR 30,925 m²

History of evolution: Siriraj

2015

2004

2003

2011

2012

Heritage buildings; Siriraj

1920 1940 1960

1923 Pier

1925 Anatomy bldg

1932 Mahidolvaranusorn

1955 Prachatipatai dorm.

1956 Vibulaksama

1924 Mahidolbampen

1925 Administrative bldg

1952 Rajapattayalai audit.

1959 SCB I bldg

1955 Old OPD bldg

Location of significant hospital buildings

Siriraj Map

BANGKOKHEE BANGKOK STATION

Prachatipatai dormitory

Anatomy

Rajapattayalai aud.

Old OPD bldg

Mahidolbampen bldg

Administration bldg

Siriraj pier

SCB bank bldg

Mahidolvaranusorn bldg

Vibulaksama bldg

Significant hospital buildings

1920 1923 Pier 1924 Mahidolbampen 1925 Anatomy bldg 1925 Administrative bldg 1932 Mahidolvaranusorn 1932 Rajapattayalai audit. 1940 1952 Old OPD bldg 1955 Prachatipatali dorm. 1955 SCB | bldg 1956 Vibulaksama

Threat: Floods

1975 1975 1975 1978 1981 1981 1983 50

Threat: Floods

1983 1989 1989 1995 1995

Threat: Floods

2011

Heritage conservation protocols review

1. ICOMOS 1965
2. World heritage committee of UNESCO 2008
 - ❑ Cultural and Natural landscape
 - ❑ Cultural landscape
3. The Burra charter 1999
 - ❑ Place: sites, area, buildings
 - ❑ Cultural significance: aesthetic, historic, scientific, social value

Heritage conservation protocols review

4. The Xi'an declaration 2005

- ❑ Contribution of setting to the significance of heritage monuments, site and areas.
- ❑ Understanding, documenting, and interpretation of heritage

5. The Hoi An protocols for best conservation practice in Asia 2009

- ❑ The key to the conservation process is the concept of authenticity
- ❑ Authenticity is measured by credibility and truthfulness of the information
- ❑ Clearly addresses both tangible and intangible aspect of the heritage

Dimensions of authenticity in the Hoi An Protocols

Dimensions of Authenticity				
Aspects	Location and Setting	Form and Design	Use and Function	Immaterial Qualities
	<ul style="list-style-type: none"> Place Setting "Sense of Place" Environmental niches Landforms and vistas Environ Living elements Degree of dependence on locale 	<ul style="list-style-type: none"> Spatial layout Design Materials Crafts Building techniques Engineering Stratigraphy Linkages with other properties or sites 	<ul style="list-style-type: none"> Use(s) User(s) Associations Changes in use over time Spatial distribution of usage Impacts of use Use as a response to environment Use as a response to historical context 	<ul style="list-style-type: none"> Artistic expression Values Spirit Emotional impact Religious context Historical associations Sounds, smells and tastes Creative process

Sources of information on authenticity in the Hoi An Protocols

Sources of Information on Authenticity					
Primary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
<ul style="list-style-type: none"> Place Primary documents [land deeds, census records etc.] Inscriptions Genealogies ancestral records Historical Photos Historical maps 	<ul style="list-style-type: none"> Civil histories Religious context Socio-economic survey of current uses Demographic data Records of clan, neighbourhood and other groups 	<ul style="list-style-type: none"> Traditional indigenous knowledge Archaeological investigations Geophysical survey Remote sensing imaging Geometrical survey and photogrammetry 	<ul style="list-style-type: none"> Periodicals Contemporary literature Dated samples of materials and styles Traditional crafts manuals and building guides Patna 	<ul style="list-style-type: none"> Ethnographic records Ethnographic collections Experimental studies 	<ul style="list-style-type: none"> "Spatial Integrity" Degree of continuity of use Socio-cultural context Environmental Trauma
Secondary Sources					
Historic	Social	Scientific	Artistic	Analogy	Context
<ul style="list-style-type: none"> Chronologies Travellers' accounts Histories and commentaries Diaries, correspondence 	<ul style="list-style-type: none"> Analysis of continuity of use, occupation etc. Studies of craft organization Analysis of political consensus Social commentaries 	<ul style="list-style-type: none"> Quantitative and statistical analysis Laboratory analysis Dating methods Materials analysis Engineering and structural studies Mathematical modelling 	<ul style="list-style-type: none"> Artistic commentaries and reviews Stylistic analysis Study of comparative sites and resources 	<ul style="list-style-type: none"> Interpretative studies Application of models such as nearest neighbour analysis Studies of cultural antecedents 	<ul style="list-style-type: none"> Surrounding spaces Political context Economic Context of technological change

Why using the Hoi An Protocols

- ❑ The issues on authenticity were clearly and thoroughly addressed
- ❑ Authenticity brought up the critical aspect of conservation
- ❑ It gave a clear direction for authenticity and value assessment
- ❑ It clearly addressed on authenticities of both tangible and intangible aspect of the cultural heritage
- ❑ Different dimensions of authenticity and their sources of information were clearly documented

Dimension of Authenticity Siriraj Hospital

Location and setting	Detail
Place	Located along 2 rivers
Setting	Oldest leading modern medical center and medical school
Sense of place	Healthcare facility and medical school
Living elements	Under continuous and increasing in use for 124 years
View and vista	Riverfront medical facility

Dimension of Authenticity Siriraj Hospital

Form and design	Detail
Spatial layout	Facing the river, heritage buildings are along the river
Design	Pavilion style medical and academic buildings

Dimension of Authenticity Siriraj Hospital

Use and function	Detail
Use	Medical center and medical school
Users	Patients & family members, staff, students, visitors
Association	Current & former students, staff, patients
Change in use over time	Form, adaptation in use
Use as a response to historical context	Change according to medical knowledge, healthcare policy, technology, royal patronage

Dimension of Authenticity Siriraj Hospital

Immaterial qualities	Detail
Values	Functional, historic, educational, aesthetic, social, and unique value
Emotional impact	Royal patronage, Prince Mahidol, Model for Thai medical education

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Discussion

- ❑ Siriraj is heritage significant and valuable
- ❑ Siriraj is still maintaining its identity as the oldest leading modern medical center and medical school
- ❑ Siriraj is located between 2 rivers, annual flood is a regular threat. The royal flood prevention project in 1989 significantly reduced the threat.
- ❑ Buildings built before 1970 were mostly in pavilion style. After 1970 monoblock style buildings started to replace the previous pavilion buildings

Discussion

- ❑ Area of Siriraj has been periodically expanded. The last expansion was in 2003, 15 acre land granted from Ministry of Transportation
- ❑ Practice of replacing old buildings with new high-rise block building is still on going. Replacement is temporally slow down by the new area expansion

Siriraj Hospital: Strategies and Plan

1. To be excellence in research
2. Teaching, learning, and academic excellence
3. Healthcare and service excellence
4. Internationalization
5. Administrative excellence
6. Social responsibility

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A Guideline for Conservation Siriraj

1. Enhancing the hospital environment
 - ❑ By the significances and values of the hospital, Siriraj should be conserved congruently with the hospital strategies and plan
 - ❑ Design, orientation of new buildings should be in sympathy with the spatial layout, view, and utilization of the significant heritage buildings
 - ❑ Listing of the hospital buildings by chronological development, physical status, past and current functions and renovation should be done for heritage assessment

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A Guideline for Conservation Siriraj

1. Enhancing the hospital environment

- ❑ Zoning of the heritage areas and buildings: historical area along the riverfront
- ❑ Develop green area, trees, open space, physical environment management plan to enhance utilization of the heritage area and buildings
- ❑ Interpretation of hospital as a heritage significance should be done along with the conservation
- ❑ Promote utilization, adaptation in use of the heritage areas and building

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A Guideline for Conservation Siriraj

1. Enhancing the hospital environment

- ❑ Traffic, roads, paths, cover way, boat, wall, fence and subway management to support the heritage conservation and enhance heritage utilization



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A Guideline for Conservation Siriraj

2. Supporting the academic excellence

- ❑ Enhance using heritage area and buildings as part of medical academic environment to promote the excellence in research and academic
- ❑ Create recreation environment in the heritage zone to support academic excellence

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A Guideline for Conservation Siriraj

3. Engaging the community, social responsibility

- ❑ Promote using of the heritage area, green area along Chaopraya river to encourage interaction with community and public for enhancing health promotion and well-being
- ❑ Promote using of the heritage area for former and current students, hospital staff

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Conclusion

- ❑ Healthcare architecture is on a dynamic development according to medical knowledge, scientific achievement, social and healing culture, building technology, pattern of healthcare utilization, and governmental policy
- ❑ Siriraj is heritage-significant and valuable. Siriraj should be conserved in according to its multidimensional authenticity and congruent with the hospital's strategies and plan

Future direction

1. Heritage conservation guideline should be revised periodically according to hospital's strategies, mode of transportation, and trend in healthcare utilization
2. Multidisciplinary approach to heritage conservation should be done before detailed plan
3. Survey feeling and attitude toward hospital conservation from different groups of hospital client should be part of the heritage conservation plan

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Future direction

4. Study of effect of physical environment of the hospital to the patient, both general and psychiatric hospitals
5. Siriraj is always under expansion and development.
Centralized megahospital identity vs. virtual healthscape of the future healthcare might need further careful analysis

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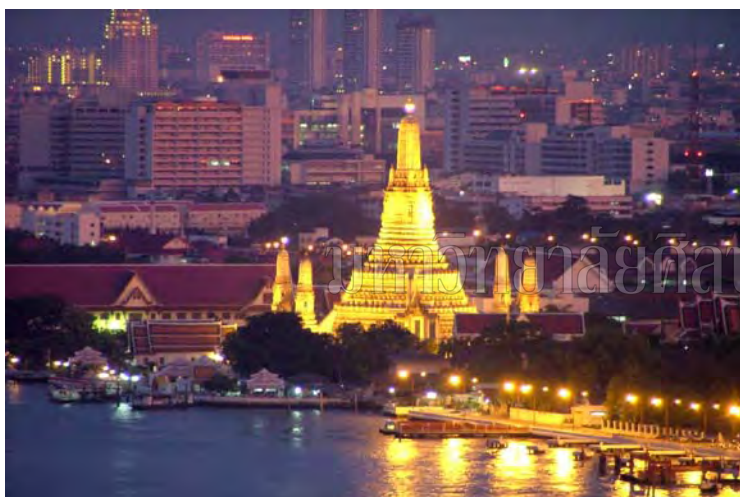
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Acknowledgement

- Prof. Donald Ellsmore, Ph.D
- Prof. Trugjai Buranasomphob, Ph.D
- Asst. Prof. Piboon Jinawath, Ph.D
- Prof. Somporn Bussaratid, MD
- Prof. Sanjai Sangvichien, MD
- Asst. Prof. Panom Ketumarn, MD
- Nattha Saisaveoy, MD
- Namon Phongsakornpaphas, MA
- Ilada Subsin, Ph.D
- Prapapan Pompothong
- Thienrat Sakasuparek
- My family

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มหาวิทยาลัยมหิดล ภาคร สวงวลีขสิทธิ์

Biography

Name: Nantawat Sitdhiraksa

Birthplace: Nakohn Si Thammarat, Thailand

Birthdate: December 29, 1969

Address and Telephone Numbers:

Department of Psychiatry

Siriraj Hospital School of Medicine, Mahidol University

Prannok, Bangkoknoi, Bangkok 10700 THAILAND

Tel. (66-2) 419-7000 ext 4298, (66-8) 89-23456

Fax. (66-2) 411-3430

E-mail: sinsk@mahidol.ac.th, numnam@gmail.com

Present Position: Assistant Professor in Psychiatry

Education:

June 1985-May 1987	Traim-udom-suksa High School, Bangkok, Thailand.
May 1987-March 1993	Faculty of Medicine, Siriraj Hospital School of Medicine, Mahidol University, Bangkok, Thailand.
June 1993-April 1994	Faculty of Graduate Studies, Mahidol University, Bangkok, Thailand.
June 1993-May 1996	Residency training, Department of Psychiatry. Siriraj Hospital School of Medicine, Mahidol University, Bangkok, Thailand.
July 1996-June 2000	Residency training. Department of Psychiatry, Washington University School of Medicine, St.Louis, MO USA.
July 2000-June 2002	Postdoctoral-Fellowship training in Substance Dependence and Family Study. Department of Psychiatry, Washington University School of Medicine, St.Louis, MO USA.

Medical Licensure and Board Certificate:

April 1993	Doctor of Medicine, Mahidol University.
April 1993	Medical License, Thailand.
April 1994	The Graduate Diploma in Clinical Science (Psychiatry), Mahidol University.
July 1996	License and Diplomat Board of Psychiatry, Thailand.
November 2000	Board eligible, the American Board of Psychiatry and Neurology.

Teaching Titles and Responsibilities:

- April 1993-2009 Instructor. Department of Psychiatry, Siriraj Hospital School of Medicine, Mahidol University. Bangkok, Thailand.
- July 2000-June 2002 Instructor in Psychiatry, Department of Psychiatry, Washington University School of Medicine St. Louis. MO USA.
- July 2000-June 2002 Psychiatric Consultation-Liaison Attending, Barnes-Jewish Hospital, Washington University in St. Louis. MO USA.
- January-June 2002 Medical Director, Chemical Dependency Unit, Barnes-Jewish Hospital, Washington University in St. Louis. St. Louis. MO USA.
- January 2009–present Assistant Professor in Psychiatry. Department of Psychiatry, Siriraj Hospital School of Medicine, Mahidol University. Bangkok, Thailand.

มหาวิทยาลัยศิลปากร สงวนลิขสิทธิ์