

## REFERENCES

- Alsop, Ian, 2009 *Metal Image Casting in Nepal*, available from: [www.asianart.com](http://www.asianart.com).
- Alsop, Ian and Charlton, Jill, December 1973, *Image Casting in Oku Bahal*, in *Contributions to Nepalese Studies*, vol. 1, no. 1.
- Apinan Poshyananda, 1992, *Modern Art in Thailand. Nineteenth and Twentieth Centuries*, Singapore, Oxford University Press.
- Apinan Poshyananda, 1992, *Western- Style Paintings and Sculptures in the Thai Royal Court*, Bangkok, Bureau of the Royal Household.
- Beek, Steve Van and Tettoni, Luca Invernizzi, 1999, *The Arts of Thailand*, HK, Periplus Editions Ltd.
- Bhirasri, Silpa, 1954, *Thai Culture Series: Modern Art in Thailand*. Bangkok, National Culture Institute.
- Bhirasri, Silpa, 1963, *Contemporary Art in Thailand*, Bangkok, Fine Arts Department.
- Bhirasri, Silpa, 1965, *Art and Mural*, Bangkok, Journal, National Theatre.
- Chutiwongs, Nandana, 2002 *The Iconography of Avalokitesvara in Mainland South East Asia*, New Delhi, Aryan Books International.
- Coomaraswami, A.K., 1972 *History of Indian and Indonesian Art*, Delhi, Munshiram Manoharlal.
- Desai, Santosh, 1980, *Hinduism in Thai Life*, Bombay. Popular Prakashan Private Limited.
- Everly, Daniel Eugene, 1983 *Conservation Of Bronze Objects*, Bangkok, Thailand, The Fine Arts Department.
- Everly, Daniel Eugene, 2004 *The Relevance of Contemporary Bronze Casting in Ubon Thailand for Understanding the Archaeological Record of the Bronze Age in Peninsular Southeast Asia*, Master's Thesis, Faculty of Anthropology, Office of Graduate Studies, Texas A& M University.
- Fine Arts Department, 2002, *Guide to the gallery of Thai History*, Bangkok, National Museum.
- Gosling, Betty, 2004, *Origin of Thai Art*, Bangkok, River Books Co. Ltd.
- Henderson, Virginia, 1998, *The Social Production of Art in Thailand: Patronage and Commoditization, 1980-1998*, Mastrs'sThesis, Thai Studies Center, Faculty of Arts, Chulalongkorn University.

- Hingham, Charles, 1996, *The Bronze Age of Southeast Asia*, UK, Cambridge University Press.
- Hingham, Charles, 2002, *Early Cultures of Mainland Southeast Asia*, Bangkok, River Books Ltd.
- Jha, Makhan, 1983 *An Anthropological Thought*, New Delhi, Vikas Publishing House PVT LTD.
- Kramarisch, Stella, 1964, *The Art of Nepal*, Vienna, Asia House Gallery Publication.
- Mabbet, Ian and Chandler, David, 1995, *The Khmers*, USA, Blackwell Publishers.
- Majumdar, A.K., 1954, *The Classical Age The History And Culture Of The Indian People*, Bombay, Bharatiya Vidya Bhavan
- Marshall, Judy, 1999, *Concise Oxford Dictionary*, New York, Oxford University Press.
- May, Regiland Le, 2004, *Buddhist Art in South – East Asia, The Indian Influence On The Art Of Thailand*, New Delhi, Aryan Books International.
- National Museum, 2002, *Guide to the Gallery of Thai History*. Bangkok.
- Nildum, Nilwan, 2003, *The Architectural Heritage For Wang Tha Phra And Wang Thanon na Phra Lan: From The Palaces of Builders and Craftsmen To the Art And Cultural Centre*, Bangkok, Silpakorn University.
- Niyon Wongpongkam, Songkon Chantachon, and Subun Ieamvijarn, 2009 *A Study of Isan and Lao Indeginous Knowledge in Making Bronze Brass Products for Commercial Purposes*, Medwell Journal.
- Peleggi, Maurizio, 2002 *Lords of Things: The Fashioning of the Siamese Monarchy's Modern Image*, USA, University of Hawaii Press.
- Sawaddi Magazine, 1979, *The Artistic Heritage of Thailand*, Collection of Essays, Bangkok, National Museum Volunteer Group.
- Schroeder, Ulrich von, 1981, *Indo Tibetan Bronzes*, Hongkong, Visual Dharma Publication, South China Printing.
- Singh, Madanjeet, 1971, *Himalayan Art*, UK, UNESCO Arts Books, Macmillan.
- Slusser, Mary Shepherd, 1982, *Nepal Mandala*, UK, Princeton University Press.

- Solheim Li, W.G., 1972, *An Earlier agricultural revolution*, Scientific American, CCVI
- Stengs, Irene, 2009, *Worshipping the Great Moderniser: King Chulalongkorn, Patron Saint of the Thai Middle Class*, Singapore, Nus Press.
- Subhadradis Diskul 1990, *Hindu Gods of Sukhodaya*, Bangkok, White Lotus Co. LTD.
- Subhadradis Diskul, 1981, *Art In Thailand: A brief History*, Bangkok, Amarin Press.
- Sutra Translation Committee of the United States and Canada, 2000 *The Seekers Glossary of Buddhism*, Taiwan: The Corporate Body of the Buddha Educational Foundation
- Tuan, Yi-Fu, 2003, *Space and Place: The Perspective of Experience*, Minneapolis, University of Minnesota Press.
- Waber, Max, 1991, *The Sociology of Religion*, Boston. Beacon Press.
- Wang, Ka F., 2006, *Vision of a Nation, Public Monuments in Twentieth Century Thailand*, Bangkok, White Lotus.
- Wang, Ka F., 2006, *Vision of a Nation, Public Monuments in Twentieth Century Thailand*, Master's Thesis, Thai Studies Center, Faculty of Arts, Chulalongkorn University.
- Watanangura, Pornsan, (editor) 1908, *The visit of King Chulalongkorn to Europe in 1907: Reflection on Siamese History*, Bangkok, Chulalongkorn University Printing House.
- William, Studdart, 1993, *Outline of Hinduism*, New York, The Foundation of Traditional Studies.

<http://www.finearts.go.th>, accessed on 21th Dec 2009

<http://webhost.m-culture.go.th/culture01/en/>, Accessed on 21th Dec 2009

<http://portal.unesco.org/en/ev.php>

[URL\\_ID=18529&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php?URL_ID=18529&URL_DO=DO_TOPIC&URL_SECTION=201.html), Accessed on July 2010

<http://www.thailandtraveltours.com/thailand-thai-kings-royal-regalia-thaikingsroyalregalia.htm>, Accessed on July 2010

[http://penn.museum/banchiang/wp-content/uploads/2009/06/2008\\_White\\_Bougon.pdf](http://penn.museum/banchiang/wp-content/uploads/2009/06/2008_White_Bougon.pdf),

Accessed on 22 Aug 2010

<http://en.wikipedia.org/wiki/Art> , Accessed on August 2010



## GLOSSARY

**Anatomy:** The bodily structure of a plant or an animal or of any of its parts.

**Avalokitesvara:** One of the most popular of the five Bodhisattvas of Mahayana Buddhism, he is portrayed with as many as 11 heads and 22 arms. On his tall chignon, he wears the emblem of Amitabha from whom he emanates. His body is heavily ornamented and he may be portrayed with an antelope skin over his left shoulder or a tiger skin tied at his waist.

**Avatar:** An incarnation of a god, specifically of Vishnu. Phra Ram is an avatar of Vishnu.

**Bodhisattva:** An emanation of the five *Dhyani Buddhas*, four of the cardinal points and one of the zeniths, in Mahayana Buddhism. A Buddha-to-be who has postponed his passage to nirvana to help others reach enlightenment.

**Brahman:** A devotee of Brahmanism prior to the creation of Hinduism. The term also describes a member of the highest rank in terms describes a member of the highest rank in the Hindu caste system. The Brahmans have been responsible for conducting ceremonies of state and rites of passage for the royal family.

**Brahmanism:** The religion of India out of which Hinduism and Buddhism grew.

**Bronze Age:** A period of human culture between the Stone Age and the Iron Age, characterized by the use of weapons and implements made of bronze.

**Chakravartin:** A "universal monarch" and one of the two forms it is said Buddha could have assumed in his last birth to lead mankind. Instead, he chose to be a Teacher and by that means to bring salvation to mankind.

**Cire Perdue:** Lost wax method of bronze casting. In this method the shape of the desired object is modeled in wax which is then given a molding of clay all over except for the mouth of the pouring channel. After the clay mould dries the wax is melted out and replaced with the molten metal poured into the cavity. After the metal is sufficiently cooled the clay mould is broken off in order to reveal the cast image.

**Cold Hammering:** Beating a sheet of metal with a hand hammer to strengthen the metal as well as take out different embossed pattern on the metal. Cold hammering is performed entirely by hand, a highly skilled and labour- intensive process.

**Crucible:** Pot of clay or other refractory material, used from ancient times as a container for melting metals or other materials. Modern crucibles may be small laboratory utensils for conducting high-temperature chemical reactions and analyses, or large industrial vessels for melting and calcining metal, ore, or glass, and may be made of clay, graphite, porcelain, or a relatively infusible metal.

**Dhyani Buddha:** In Mahayana belief, there are five Buddhas, four of the cardinal points and one of the zenith. They are generally portrayed in an attitude of meditation with different hand positions. The most popular is Amitabha.

**Die casting:** Die casting is the process of forcing molten metal under high pressure into mould cavities.

**Dong Son Culture:** The Dong Son culture is a Bronze Age culture including all of South East Asia and into the Indo- Malayan Archipelago from about 1000 to 1 BC. Centered on the red river valley of Vietnam, the Dong Son people were sophisticated agriculturalists, farming rice and domesticated buffalo and well known for the bronze artifacts like Dong Son drums. Dong Son probably arose from local Neolithic cultures, such as Phung Nguyen and Dong Dau phase. This culture is identified with the Van Lang ruling dynasty, the first ruling dynasty of Vietnam. Dong Son culture is contemporary to the major Han Chinese imperial expansion. Archaeologists associated with Dong Son include French explorer L. Pajot, J.M. Janse, Victor Golougew, and Ha Van Tan.

**Gypsum Plaster:** Gypsum is a mineral that is used in plaster. Ground gypsum is calcined and then mixed with various additives to control its setting and working qualities; used with the addition of aggregate and water, for base coat plaster.

**Ingot:** A mass of metal, such as a bar or block, that is cast in a standard shape for convenient storage or shipment. It is made by pouring molten metal in a mould to solidify.

**Iron Age:** The period in cultural development succeeding the Bronze Age in Asia, Europe, and Africa, characterized by the introduction of iron metallurgy.

**Kiln:** A kiln is a thermally insulated chamber or oven in which a controlled temperature regime is produced. Kilns are used to harden, burn, or dry materials.

**Mahayana Buddhism:** One of the two major sects of Buddhism, which arose 300- 400 years after Buddha's death in 543 B.C. Its prime principle is that it is the duty of those who have achieved Enlightenment to refrain from passing into nirvana but to remain behind to aid others to reach their own state of perfection. Practiced in Japan, china, Korea, Nepal and Tibet.

**Mongkut:** The term describes the crown worn by Thai kings. The term also denotes the architectural structure comprised of tiers of disks which rise in descending order of size to a pointed finial. Used to cap important wat buildings, notably the Prasad, the tiers symbolize the 33 Buddhist levels of perfection, a concept borrowed from the Hindu 33 levels of heaven representing the prang.

**Nirvana:** The state of total extinction entered after one has achieved Enlightenment and thereby escaped the cycle of deaths and rebirths to which all life is subject.

**Radio Carbon Dating Method (C14 dating):** Radiocarbon dating is a process for determining the age of a prehistoric object by measuring its radiocarbon content. The technique was developed by an American chemist, Dr. Willard F. Libby (1908-1980), in the late 1940s. All living things contain radiocarbon (carbon 14), an isotope that occurs in a small percentage of atmospheric carbon dioxide as a result of cosmic ray bombardment. After animal or plant dies, it no longer absorbs radiocarbon and the radiocarbon present begins to decay (break down by releasing particles) at an exact and uniform rate. Its half-life of 5,730 years made it useful for measuring prehistory and events occurring within the past 35,000 to 50,000 years. A recent development, called the Accelerated Mass Spectrometer, which separates and detects atomic particles of different mass, can establish more accurate dates with a smaller sample. The remaining radiocarbon can be measured and compared to that of a living sample. In this way, the age of the 50,000-year-old or less, animal or plant (or more precisely the elapsed time since its death) can be determined.

**Rama:** Also known in Thai as Phra ram, he is an avatar of Vishnu and the hero of the popular classical tale, the Ramakien in Thailand and Ramayana in India/Nepal. He is revered as the perfect monarch and the perfect husband.

**Samadhi:** State of deep meditation or the attitude of meditation usually performed with sitting cross- legged.

**Silicone Rubber:** Silicone is a synthetic polymer, derived from silicon metal. The nature of its origin gives it a number of significant advantages over conventional rubber polymers. Silicon is available in the form of rubbers, greases and fluids.

**Smelting:** The process of extracting usable metal from an ore by heating to extreme temperatures in a hearth or furnace. Some metals melt when smelted and these can be trapped in crucibles and make ingots. The main chemical reaction in smelting is to reduce metal oxide in the form of a bloom which can be further worked by forging to drive off the remaining impurities.

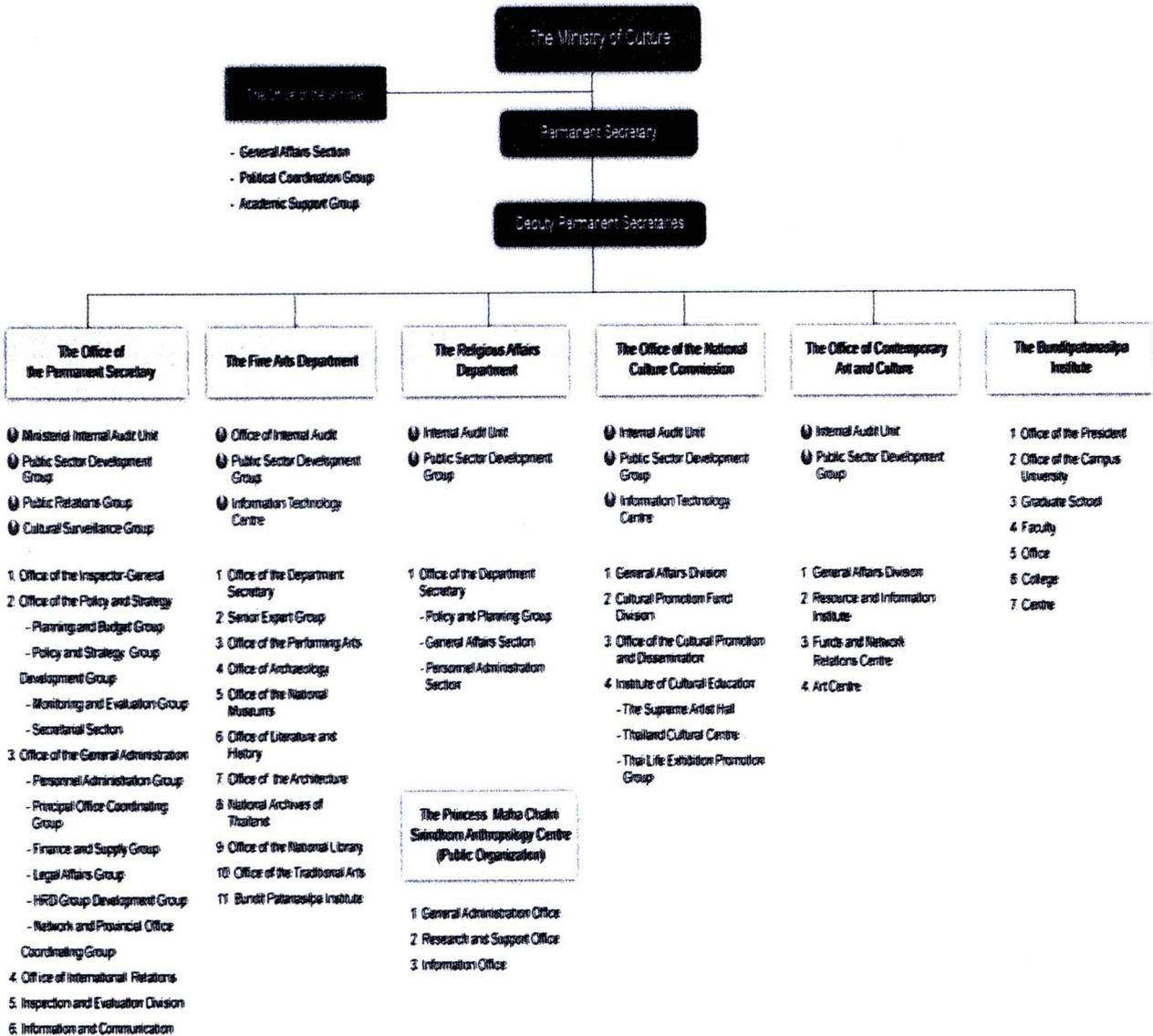
**Stratigraphy:** It is a sub branch of geology dealing with either stratification in sedimentary rocks or in volcanic rock folds. In another word, stratigraphy is the study of rock layers (strata) deposited in the earth. It is one of the most challenging of geologic sub disciplines, comparable to an exacting form of detective work, yet it is also one of the most important branches of study in the geologic sciences. Earth's history, quite literally, is written on the strata of its rocks, and from observing the layers; geologists have been able to form an idea of the various phases in that long history. Naturally, information is more readily noticeable about the more recent phases.

**Wai:** A gesture of respect to a Buddha or an important monk or person or simply as a gesture of greeting. It is performed by placing the palms of both hands together before the chest in an attitude of prayer.

**Wat:** A term meaning both 'temple' and 'monastery' and describing the complex of building including the bot and vihan contained within a single courtyard.

# APPENDIX 1

## Organization Structure of the Ministry of Culture



## **APPENDIX 2**

### **Mission and function of Fine Arts Department**

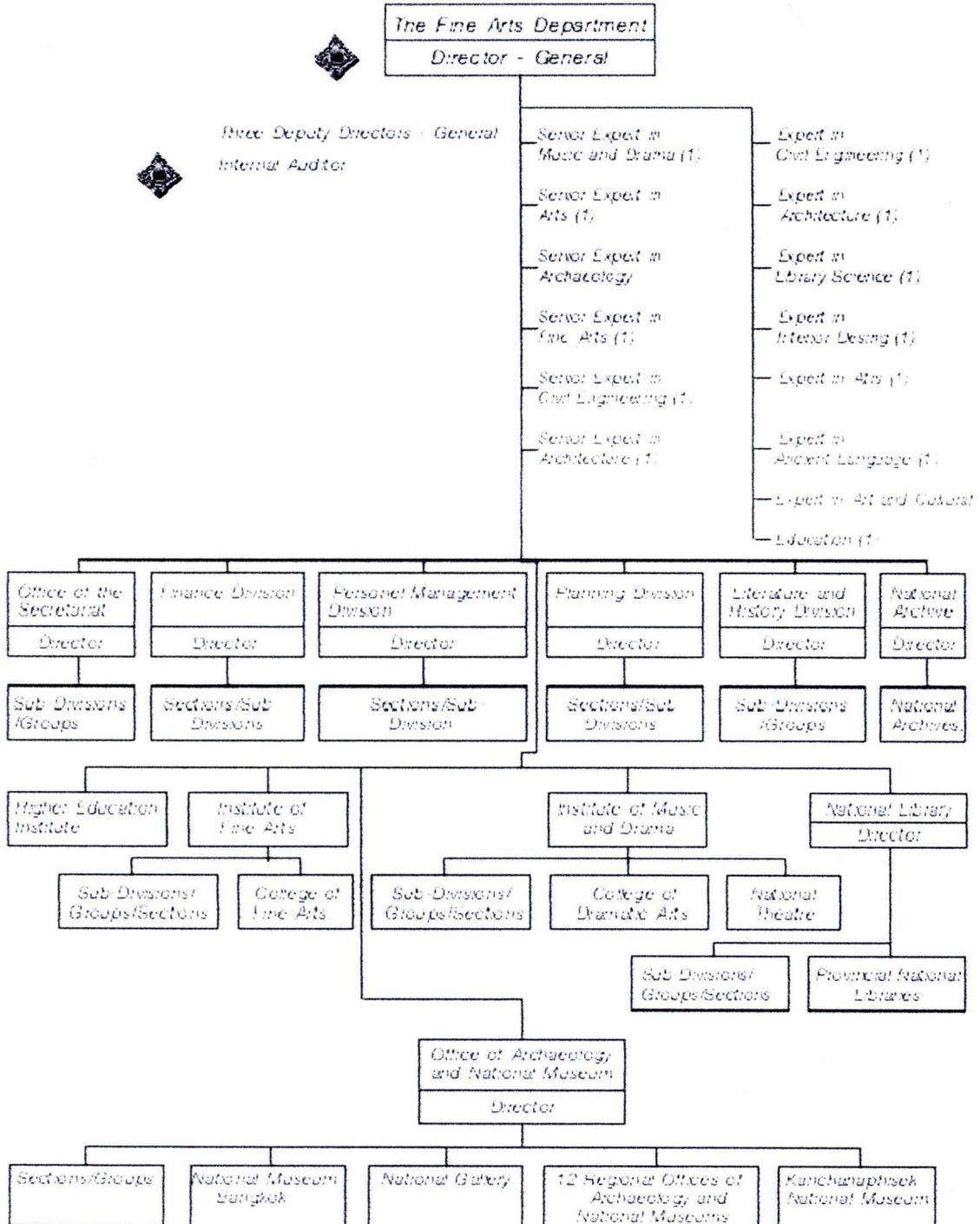
The Fine Arts Department has since its establishment altered, improved and expanded its structure to serve the following mission and functions :

1. Proceed according to the Act on Monuments, Artifacts, Art objects and National Museums, together with other related legislation and laws
2. Preserve, conserve, revive, promote, create and disseminate the knowledge, wisdom and Culture of the nation in the areas of :
  - 2.1 Museums, archaeology and monuments
  - 2.2 Literature, history, custom and tradition, national libraries and national archives
  - 2.3 Performing arts, architectural and fine arts
3. Provide education in the areas of dance, music, composition and craftsmanship, both in and out of school
  - 3.1 Provide education up to a Bachelor degree course in the areas of visual and performing arts, both in the Thai and western classical schools, together with contemporary art and cultural education
4. Study and research to preserve cultural heritage via museums, archaeology and monuments, language, literature, history, custom, tradition national libraries, national archives, performing arts, architectural and fine arts
5. Act in other areas mandated by laws to be under the department's jurisdiction or as ordered by the Ministry or the Cabinet.

### **Matters of urgency**

1. Support systematic and practical studies and researches on local wisdom and culture
2. Support the development of personnel in cultural management, conservation and creativity
3. Prevent further illicit export / import of antiquities
4. Promote creative efforts in local architectural identities
5. Organize special activities on auspicious events for the royal celebrations

### APPENDIX 3



## APPENDIX 4

### Visual Art

The Institute of Fine Arts is responsible for a wide range of areas in Visual Arts ranging from arts education, studies, preservation, design and supervision of the construction of government agencies and Buddhist temples in the traditional style. Moreover, the erection of national monuments and the reproduction of Buddha images come under the supervision of the Institute. In education, the scope of work covers the administration of the College of Fine Arts.

The Institute of Fine Arts has one of the duties of strengthen traditional craftsmanship known as "Chang sip mu" and to ensure its continuity. These crafts which comprise drawing, engraving, beating (hammering of gold into thin sheets), and turning (Shaping objects with a lathe), date back to the Ayutthaya period (1350 - 1767 A.D.) These manual arts are based upon a high standard of handed - on skills in which intricate and symmetrical details are of the utmost importance. Despite the Department's efforts, these arts and crafts which embody exquisite features of Thai culture may suffer a severe loss in this modern world.

## APPENDIX 5

### Bio-data 1

- Name:** Mr. Boonsong Nootnomboon (student of Silpa Bhirasri)
- Date of Birth:** 21<sup>st</sup> April 1939
- Education:** 1957 - Art and Craft School, Bangkok  
1960 - Silpakorn University, Bangkok  
1965 - BA Sculpture  
Faculty of Painting and Sculpture
- Experience:** 1966 - Worked with the Fine Arts Department, Bangkok

Now retired from past 17 years

## Bio-data 2

- Name:** Mr. Pongpan Chantanamattha
- Date of Birth:** 1974
- Education:**
- |      |   |
|------|---|
| 1998 | B.F.A. (Sculpture), Silpakorn University, Bangkok   |
| 2006 | Certificate of Sculpture, Academy of Fine Arts of Florence, Italy<br>(Italy Governor's Scholarship 2005 – 2006) |
| 2006 | Studying M.F.A (Cultural Management)<br>Thammasat University, Bangkok (University's Scholarship)                |
| 2009 | Certificate of Sculpture, Academy of Fine Arts of Carrara, Italy<br>(Italy Governor's Scholarship 2008 – 2009)  |
- Contact Detail:** Studio:  
93, Moo 3, Phutthamonthon 5, Salaya, Nakornprathom, Thailand  
Thai Mobile: 00 668 1575 3020  
Italian Mobile: 329 876 9268  
**Email:** [chantanamattha@yahoo.com](mailto:chantanamattha@yahoo.com)
- Present:** Sculptor, The Fine Arts Department, The Ministry of Culture
- Exhibition:**
- |      |   |
|------|---|
| 2009 | <ul style="list-style-type: none"> <li>• 'Non ci sono solo belle arti', Carrara, Italy</li> <li>• 'Belle arti dal segno al concetto', Albissola, Italy</li> <li>• 'Entrata libera', Ceriale, Italy</li> </ul>   |
| 2008 | <ul style="list-style-type: none"> <li>• 'Art No Wall', Bangkok</li> </ul>  |
| 2007 | <ul style="list-style-type: none"> <li>• The monument of King Rama IV, high 410cm, Bangkok</li> </ul>   |
| 2006 | <ul style="list-style-type: none"> <li>• Exhibition of Plastic Artsm Casa do Brazil, Madrid, Spain</li> <li>• Sculpture Exhibition, Cabals Galeria, SantCugat, Barcelona, Spain</li> </ul>  |
| 2005 | <ul style="list-style-type: none"> <li>• 22<sup>nd</sup> Art Exhibition by Members of the Faculty of PSG, Silpakorn University, Bangkok</li> <li>• The monument of King Rama V the Great, Pratumtanee</li> </ul>  |
| 2004 | <ul style="list-style-type: none"> <li>• 21<sup>st</sup> Art Exhibition by Members of the Faculty of Painting Sculpture and Graphic Arts, Silpakorn University, Bangkok</li> <li>• 7<sup>th</sup> Changchun Chaina International Sculpture Sumposium, China</li> <li>• The monument of King Naraysuan the Great, Lampang</li> </ul> |

## APPENDIX 6

Questionnaires prepared for the staffs of the Sculpture Division foundry of the Fine Arts Department, Salaya

Mangala Pradhan

M.A. Thai Studies

Chulalongkorn University

**This questionnaire is prepared for the field work of my thesis. I am doing a case study on bronze casting process in this foundry of The Department of Fine Arts. Please help me by giving the answers of the questions stated below. I am grateful for your contribution of valuable time filling out this questionnaire and helping the researcher to reach such aim. Thank You.**

Name

Age:

Study Qualification:

University:

Year:

Major subject:

1. When did you join department of Fine Arts?
2. What is your post in the department?
3. What is your major interest?
4. Where did you receive the training?
5. What do you feel personally when you make statues of the kings and heroes?
6. What are the most common problems you face in the workshop?
7. Do you worship the statues of the kings?
8. Do you think worshipping statue of king Chulalongkorn makes fulfill your wish?
9. How would you preserve the skills that you possess for future generations? Would you pass on your skills to your children?

Thank You

## APPENDIX 7

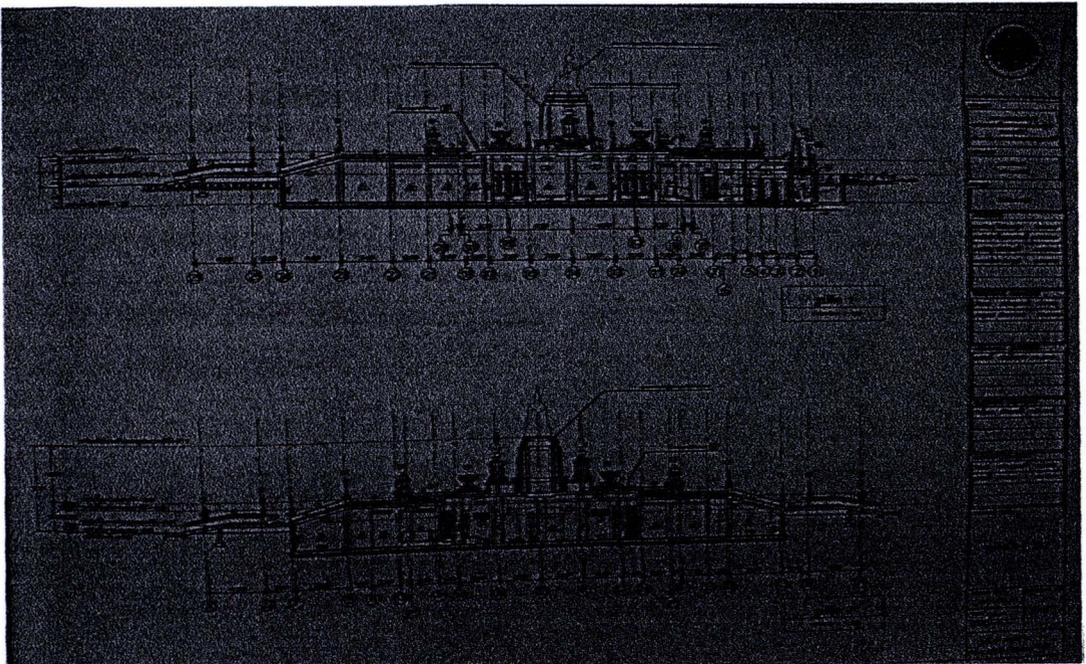
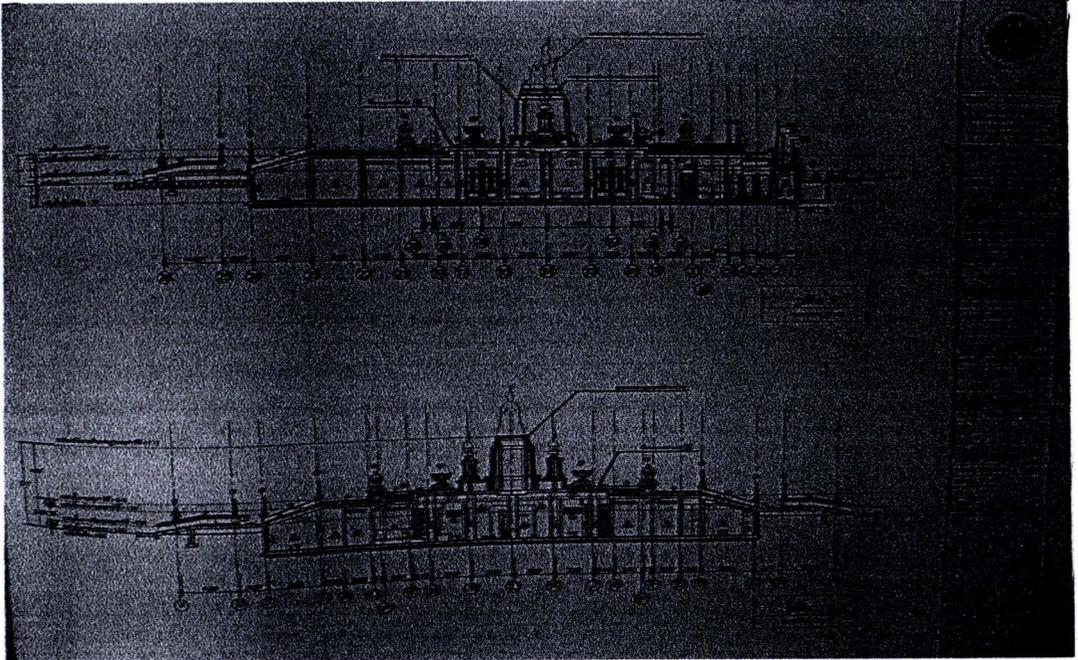
Preliminary questions prepared for the head of the sculpture and casting section of the foundry of the sculpture section of the Fine Arts Department and retired sculptors of the Fine Arts Department.

- 1) What are the techniques of contemporary bronze casting with lost wax process done in the foundry of Fine Arts Department?
- 2) Are there any differences between traditional and contemporary bronze casting?
- 3) What is the history behind the establishment of the foundry of the Fine Arts Department and its functions?
- 4) Who are the famous figures and elites been casted in the foundry?
- 5) What is the spiritual and emotional attachment of the sculptors and casters? Who are the persons who order such statues and what is the reason behind making. What are the processes of order for a sculpture?
- 6) What does the artist feel personally when making statues of the kings and heroic figures of the nation? Do they believe in worshipping the statues of the kings and hero figures?
- 7) What motivates the artists to make and work upon the sculptures? Is it only for the job or the inner spiritual, faith or belief that motivates them to make an art object?
- 8) What are the differences between traditional and modern bronze casting process? Which process is more expensive? How long do these processes take and how many statues are made in a year?
- 9) How are the traditional processes preserved? Are there traditional processes revitalized into, modern processes?
- 10) Who are the various specialists involved in casting? Do the specialists inherit the profession? How would they preserve the skills that they possess for future generation? Will they pass on their skill to their children?
- 11) Is there any preference to which the process is undertaken by the government or the customer?
- 12) How materials are used and economized and in which process? How the residue or the remains of the metal and other casting materials is managed? What is the significance of the modern materials (e.g. Silicon, Gypsum plaster, gas furnace etc.)?
- 13) How many people are engaged in the foundry and what is the status of manpower? Where did they receive training to make sculpture and cast?
- 14) What is the economic status of the foundry?
- 15) What are the most common problems the artisans face in the workshop?



## APPENDIX 8

Plan of KING MONGKUT MEMORIAL PARK, Phra Nakhon Khiri Historical Park, Petchaburi. Documents provided by Mr. Oan.



## APPENDIX 9

### Difference between Contemporary and Traditional Lost Wax casting technique.

Contemporary lost wax casting method	Traditional lost wax casting method
<p><b>Raw Materials</b></p> <ul style="list-style-type: none"> <li>❖ Sand and clay and modern materials such as Gypsum, Silicon rubber, iron are more often used.</li> </ul>	<p><b>Raw Materials</b></p> <ul style="list-style-type: none"> <li>❖ Sand, clay, more natural substances such as firewood, cow manure, etc</li> </ul>
<p><b>Time Factor</b></p> <ul style="list-style-type: none"> <li>❖ Gypsum and silicon dry faster and normally took half of the time</li> </ul>	<p><b>Time Factor</b></p> <ul style="list-style-type: none"> <li>❖ Moulds were made by a mixture of clay, sand, cow manure which took longer time to dry</li> </ul>
<p><b>Quality</b></p> <ul style="list-style-type: none"> <li>❖ The use of only clay on the core statue, helps the sculptor to make appropriate modifications to the core to get the desired result.</li> <li>❖ For realistic statues modern equipment, technology and knowledge makes easy for the sculptors</li> </ul>	<p><b>Quality</b></p> <ul style="list-style-type: none"> <li>❖ Mixture of clay and sand for the core statue once made cannot modify many times</li> <li>❖ Quality of the bronze statue is based mostly on a sculptor's skills and dexterity</li> </ul>

<p><b>Technique</b></p> <ul style="list-style-type: none"> <li>❖ The steps involved in the contemporary method are a lot more than the traditional method and is also more complicated.</li> <li>❖ E.g.. the core moulds are cut and divided into many parts prior to applying the gypsum. It is up to a sculptor's intuition and insight as to how and where to make these distinct cuts, which are complicated and also requires a lot of experience</li> </ul>	<p><b>Technique</b></p> <ul style="list-style-type: none"> <li>❖ Steps involved are not so complicated</li> <li>❖ The traditional method also does involve this process of cutting and dividing, however it is basically done by cutting huge sections of the major parts of the statue, such as the whole arm of a statue</li> </ul>
<p><b>Cost</b></p> <ul style="list-style-type: none"> <li>❖ Gypsum, silicon , gas which are mostly used are more expensive</li> <li>❖ One advantage of using silicon moulds is that these moulds could be reused to make many statues hence reducing the cost and time taken to re-do the process all over again.</li> </ul>	<p><b>Cost</b></p> <ul style="list-style-type: none"> <li>❖ Clay, sand, cow manure, and firewood used in the traditional method to melt the bronze are cheaper than the modern materials</li> <li>❖ One mould can produce only one statue</li> </ul>

## APPENDIX 10

### List of some of the famous bronze sculptures and monuments

	Name	Year	Place	Designer	Sculptor
1	King Mongkut, Rama IV	1868	Wat Bowonivet, Bangkok		Luang Theprojana (Phraya Chindarangsan)
2	King Chulalongkorn, Rama V	1897	Chakri Maha Throne Hall		Cesare Fantachiotti
3	Earth Goddess		Sanam Luang	Prince Naris	Prince Naris
4	Equestrian statue of King Chulalongkorn, Rama V	1908	Royal Plaza		Georges Ernest Saulo
5	King Phra Phuthayotfa, Rama I	1932	Memorial Bridge, Bangkok	Prince Naris	Prince Naris and Silpa Bhirasri
6	King Vajiravudh, Rama VI	1941	Lumpini Park, Bangkok		Silpa Bhirasri
7	Monument of Thai Hero	1943-6	Vajiravudh Army Base, Nakhon Si Thammarat		Silpa Bhirasri and Sanan Silakorn
8	Hero figures on Victory Monument	1941	Bangkok		Silpa bhirasri
9	The archer	1935-8	Department of Fine Art		Cham Khaomeecheu
10	Proff. Silpa Bhirasri	1962	Silpakorn University, Bangkok		Sanan Silakorn
11	King Prajadhipok, Rama VII	1980	National assembly, Bangkok		Sanan Silakorn
12	King Chulalongkorn and King Vajiravudh	1990	Chulalongkorn University, Bangkok		Khaimook Chudoo
13	Relief panels on the Democracy Monument	1939	Rajadamnern Avenue, Bangkok		Silpa Bhirasri
15	King Taksin Monument	1972	King Taksin Memorial park, Chanthaburi		Suphorn Sirasongkroh, Chin Prasong and Pakorn Lekson

16	King Naresuan Monument	1958	Don Chedi, Supanburi	Silpa Bhirasri	Silpa Bhirasri,
17	King Naresuan	1959	Army Base, Pitsanulok	Silpa Bhirasri	Silpa Bhirasri, sithidej Seanghirun, pakorn Lekson, sanan Silakorn
18	King Naresuan Monument	1993	King Naresuan University, Pitsanulok	Saroj Jarak	Saroj Jarak, Somkuan Umtrakul, Sirichai Limpraphan and Sophit Phuttarak
19	King Naresuan Monument	1999	Ayutthaya		Chin Prasong
20	Thao Suranari Monument	1934	Nakhon Rachasima		Silpa Bhirasri
21	Thao Thepsatriand Thao Srisunthorn Monument	1966	Phuket		Sanan Silakorn
22	Queen Suriyothai	1995	Ayutthaya		Khaimook Chudoo
23	Princess Suphankalaya	1998	Third Army Base, Pitsanulok		
24	Queen Grandmother	1971	Chonburi		Sanan Silakorn
25	Princess Mother	1990			Manop Suwapinta
26	Khruba Srivichai	1946	Doi Suthep Hill, Chiang mai		Silpa Bhirasri and Khien Yimsiri
27	Suthon Phu , Phra Aphai Mani and sea ogress Phee Sue Samuth	1970	Suthon Phu Memorial Park, Klaeng district, Rayong		Sukij Laidej, Kraisorn Srisuwan and Thana laohaphaikul

28	Monument of Ban Rachan Villagers	1976	Singburi	Sanan Silakorn	Sanan Silakorn, Saroj Jarak, Anik Somnoon, Sukij Laidej, Kwanmuang Youngprayoon, Lamthian Kashaphuti, Boongsong Nuchnomboon, Soonthorn Srisoonthorn, Pratueng Thammarak.
29	Monument of Prince Father and Princess Mother	1999	Chonburi Memorial Park, Chonburi		Manop Suwanpinta
30	Monument of King Ananda, Rama VIII	1959	Wat Surthat, Bangkok		Silpa Bhirasri and Paitum Muangsomborn
31	King Naresuan	1970	Chiang Mai		
32	King Narai	1954	Lopburi	Silpa Bhirasri	Silpa Bhirasri, Sanan Silakorn
33	King Nangklao	1992	Bangkok		Suporn Silasongkro
34	King Nangklao	1991	Kanchanaburi		Nokorn Kachapong
35	Chao Phraya Bidindecha	1990	Sakeaw		Thane Klinkajorn
36	Maha Amat Tho (Generak) Jao Boonyawat	1978	Lampang		Sampun Utayota
37	General P. Piboonsongkram	1997	Nonthaburi		Piman Munpramook
38	King Prajadhipok	1980	Bangkok		Sanan Silakorn
39	King Prajadhipok	1991	Nonthaburi		Kongkate Chanapan
40	King Rama I	1989	Uthaithani		Leamtien Kachaputi
41	Phra Patumworarach Suriyawong	1989	Ubon Rachthani		Kongkate Chanapan

42	General prince Prajak Silpakom	1985	Udonthani		Piman Munpramuk
43	King Pinklao	1986	Pingklao Hospital, Bangkok		Sanan Silakorn
44	King Pho Khun Pa Merng	1984	Petchaboon	Saroj Jarak	Saroj Jarak, Shin Prasong, Kongkate Chanapan
45	General Phraya Pahonpolpayuha Sena	1950	Kanchanaburi		Pima Munpramuk
46	Phraya Pichai Dabhak	1959	Uttaradit		Sanan Silakorn
47	General Prince Pitsanulok Prachanat	1983	Bangkok		Suporn Sirasongkro
48	General prince Jakrapong	1971	Prachinburi		Leamtein kachaputi
49					
50	King Rama I	1982	Rachaburi		Sanan Silakorn
51	Princes Walaialongkorn	1978	Petchaburi		Kanok Boonpokean
52	Phra Pakdee Decha	1981	Prachinburi		Somkuan Umtrakoon
53	King Rama VI	1983	Hospital, Bangkok		Silpa Bhirasri
54	King Rama VI	1992	Bangkok		Sampan Utayata
55	King Rama VI	1973	Ministry of Education, Chonburi	Sanan Silakorn	Sanan Silakorn, Chin Prasong
56	King Rama VI	1986	Naknon Pathom	Saroj Jarak	Saroj Jarak, Tane Klinkajorn
57	King Rama VI	1986	Ranong	Saroj Jarak	Saroj Jarak, Tane Klinkajorn
58	King Rama VI	1982	Songkla	Chin Prasong	Chin Prasong, Sukij Layadej
59	King Mangrai	1977	Chiangrai		Pakorn Lekson
60	Somdej Phra Bowonraracha Chaw Surasrihanata	1979	Bangkok	Sanit Ditapan	Leamsing Ditapan
61	Somdej Phra Maha Weerawong	1989	Ubonrachathani		Nikorn Kachapong
62	Somdej Phra Bowonraracha Chaw Surasrihanata	1982	Kanchanaburi		Duang Keaw Tipkornsilp

63	Prince Mahidol	1950	Siriraj Hospital, Bangkok	Silpa Bhirasri	Silpa Bhirasri, Sanan Silakorn
64	Phraya Rasdanupradit	1993	Phuket	Saroj Jarak	Saroj Jarak, Somkuan Umtrakum
65	Sriprach ( poet)	2002	Nakhon Sri Thamarat		Pongpan Chantanamttha
66	King Rama V	2001	Pratumtani		Pongpan Chantanamttha
67	King Rama IV	2010	Petchaburi		Pongpan Chantanamttha
68	King Rama IV	2010	Saranrom Palace, Bangkok		Somkuan Oumtrakul
69	King Ananda Mahidol, Rama VIII	1959	The Royal Pantheon, Wat Phra Sri rattan Satradaram, Grand Palace		Silpa Bhirasri, Paitun Muangsomboon
70	King Prajadhipok, Rama VII	1959	The Royal Pantheon		Silpa Bhirasri
71	King Vajiravudh, Rama VI		The royal Pantheon		Silpa Bhirasri
72	King Chulalongkorn, Rama V		The Royal Pantheon		
73	King Chulalongkorn, Rama V	1966	Royal Thai Army Head Quarter, Bangkok		Piman Mulpramuk
74	King Naresuan	1968	Non Bua Lam Phu Province		Silpa Bhirasri, Sanan Silakorn
75	King Ekathotsarot	1968	The Head Quarters of the 3 <sup>rd</sup> Army Base, Pitsanulok		Suki Laidej
76	King Praphuttalertiarnapalai, Rama II	1964	Wat Umpawanjetiyaram, Samuthsongkram province		Phimarn Mulpramuk, Saroj Jarak
77	King Ramkhamhaeng the Great	1973	Lopburi		Silpa Bhirasri, Sanan Silakorn
78	King Chulalongkorn, Rama V	1980	Prachinburi		Sanan Silakorn

79	King Nang Klao, Rama III	1980	Wat Ratchanatdaram Wiharn, Bangkok		Suporn Sirasongkroah
80	Ganesh	1987	Chiang Mai		Nikorn Kotchpong
81	King Mongkut	1987	Drachuap Khiri Khan Province		Kwanmuang Tongprayoon
82	Prince mahitala Dhibesra Adulyadej Vikram The Prince Father	1972	Faculty of Medicine, Chiang Mai University		Saraj Jarak, Pakorn Lekson, Suporn Sirasongkroah, Boonsong Nutchomboon
83	Prince Yagala Denghambara, Prince of Lopburi	1993	Songkhla Province		Kongket Chanaphan
84	Phra Pichai dap Hak	1968	Uttaradit province		Sanan Silakorn
85	Nang Suphannamatcha	1966	In a corner of the moat around the Chitralada villa, Dusit Palace		Sawet Thettham



## BIOGRAPHY

Name: Mrs. Mangala Pradhan

Address: 92 Dasharath Marg, Tripureswar, GPO Box 328, Kathmandu, Nepal.

Date of birth: 6<sup>th</sup> September 1964, Kathmandu, Nepal.

Marital Status: Married with two children.

Qualification: (1) Higher Secondary Level, Adarsha Vidya Mandir High School, Kathmandu, 1980. (2) Intermediate of Arts (I.A.), 1985. and (3) Bachelor of Arts (B.A.), Padma Kanya Campus, Kathmandu, 1991. (4) Masters of Arts (M.A.) in Archaeology and Tourism, Tribhuvan University, Kathmandu, 1995. (5) Masters of Arts (M.A.) in Thai Studies, Chulalongkorn University, Bangkok, Thailand. 2010

### Activities:

1. Worked as a Tourism Officer in Urban Management and Economic Diversification Project (UMEDP), European Commission Asia Urbs Program, from 2002 to 2004.
2. Worked in Tribhuvan International Airport, Hospitality Desk as a Ground Hostess throughout the year "Visit Nepal Year 1998" from Dec 1997 to May 1999.
3. Participated on International Parents Summit for the growth of Asian Children in Yokohama, Japan in 2000.
4. Participated in the training program of Preservation and Restoration of cultural Heritage in the Asia-Pacific Region 2007: Preservation and Restoration of wooden Structures in Nara, Japan. (18 September to 19 October, 2007)
5. At present working as an archaeological officer in the World Heritage section of the Department of Archaeology, Government of Nepal, since 2004.

### Publications:

*SANKHU A Pilgrimage Into the Past*; Royal Nepal Airlines in flight Magazine. Vol. 9 No. 4, October - December 1998

*Paryatanka Faيدا Ra Pradushan* (Nepali) "Importance of Tourism and Pollution" A case study of Chitawan, Sauraha. Vol 1,2. Sadhana: Kamana Publication, Year 7, Vol 68 (1999)

*Murti Puja ra Kala Dharmik Avibyaktiko Shashakta Madhyam* (Nepali) "Idol Worship and art": Gorkhapatra, August, 1999.

*The Divine Feminism in Hinduism*: Souvenir Journal, Nepal Heritage Society, Kathmandu, December 1, 2001.

**Award:** (1) Scholarship for training of Preservation and Restoration of cultural Heritage in the Asia-Pacific Region 2007: Nara, Japan by Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU) Nara Prefectural Government Office, Japan.

(2) Scholarship by Thailand International Development Cooperation Agency (TICA), Ministry of Foreign Affairs, Kingdom Of Thailand to study Masters in Thai Studies in Chulalongkorn University, Bangkok. 2008

