



Annual Report 2009



國立科學工藝博物館
NATIONAL SCIENCE AND TECHNOLOGY MUSEUM


Annual Report 2009



Preface

In 2009, the National Science and Technology Museum (NSTM) fully utilized external resources and linked the network of the industrial, public and academic sectors to push forward a series of improvement works based on the three administrative targets- "create a friendly environment", "upgrade the quality of professional service", and "accumulate the capital of sustainable development". In the first stage, we placed our focus on creating a high-quality museum environment; within this year, we have completed several major projects, including implementation of multimedia interactive games to fully utilize the overall public spaces, opening of the lobby area to the public, establishing a one-stop service window, adding benches to the corridor in the fourth floor, and renovation works for the B1 corridor. Inside of the museum, five upgrade projects were implemented for the permanent exhibition hall and the museum has also independently organized six exhibitions and brought in the external organizations to host as many as 18 special exhibitions. These exhibitions featured a diversified range of technology topics and were implemented through innovative exhibition applications to bring the audiences a series of unprecedented experiences.

To achieve widespread of science education, enrich learning resources, and expand the audiences' depth and breadth in science knowledge, the NSTM specially designed a series of science education activities targeted for audiences of different age groups, including active ageing, science for the children, energy conservation and reduction of carbon emission, and science for children in the rural areas. The NSTM brings science into people's lives and proactively expands learning opportunities for all citizens in the nation. In the aspect of collection, the NSTM coined the core objective and sought out nationwide for historic relics that are significant to the history of Taiwan's industrial development. These relics were then archived digitally and documented based on relevant studies and discussions of industrial cultural relics; through which, the NSTM facilitates research and application of technological civilizations. With the efforts of all members of the NSTM, we have achieved a fruitful year and we will continue to maintain our operations at such high standard as have created this year.



In recent years, the subject of global warming has brought up heated discussions worldwide. Protecting resources on earth has become an urgent matter for all societies in the world. As an institution of social education, the NSTM will take on the responsibility and proactively respond to the needs with its technology and resource advantages. Looking into the future year, the NSTM strives to facilitate sustainable development in all four dimensions-environment, society, economics, and culture, through museum operations in response to the trends in the overall environmental and social issues. And in action, we strive to build a green museum based on the motto- "bringing life into technology and bringing technology into life".

To fully manifest a museum's spirit in sustainable development through its tangible architecture, exhibitions, educational events, and museum collections, the key lies in the intangible human resources; accumulation and reinforcement of manpower, as well as cultivating an organizational culture, will be the essential work. Therefore, in the future, the NSTM will take a proactive stance to develop employees' professional knowledge, share internal knowledge and information, implement a well-designed system of job delegation and authorization and establish high-standard organizational commitment. We aim to continuously improve and strive for higher efficiency; our commitment constitutes a powerful force to achieve ever-expanding effects. We expect all our managers stand as five-star leaders with distinguished quality such as modesty and commitment to professionalism, and we expect our leaders to value the staff's knowledge and abilities and place them in the most suitable positions, so that we will create an organization with unobstructed communication. I believe that, with the professionalism and enthusiasm of all our staffs and contracted employees, we will be able to consolidate the special attributes of a museum to extend our organization's creativity into infinite possibilities. We will create a sustainable "green museum" shared by all citizens in the nation and make "going to the science museum" an enjoyable adventure for all.

Chen, Shiunn-Shyang

Director-General, National Science and Technology Museum

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Introduction

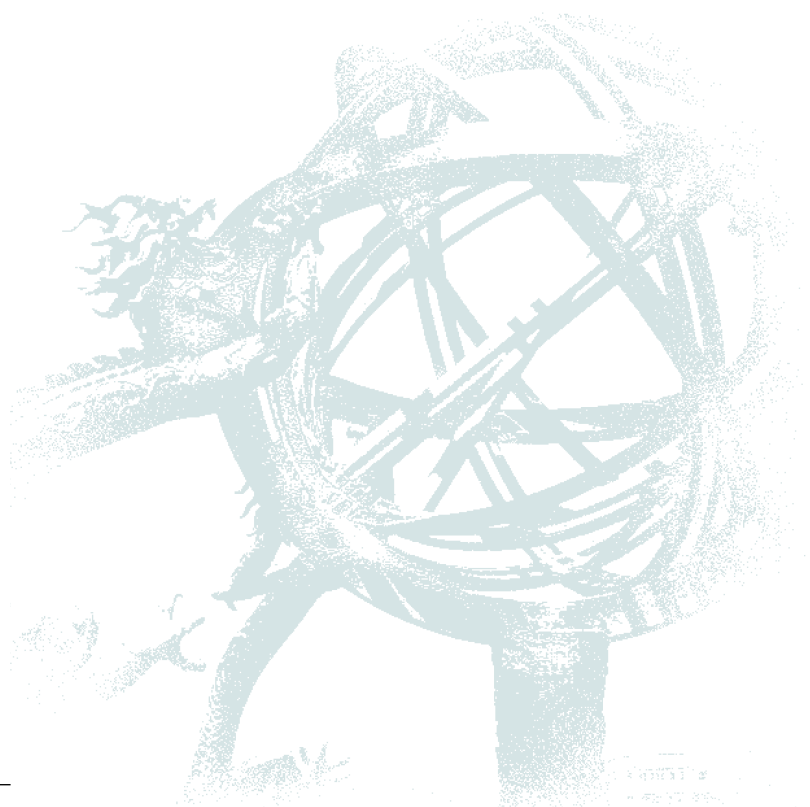
1. History

The National Science and Technology Museum (NSTM) was one of the central cultural facilities constructed in the “Project of County/City Cultural Center Construction” in The Twelve Construction Projects announced by the Executive Yuan in 1979. As the first museum of applied science on the island as well as the first national institute of public education in Southern Taiwan, the focus of the museum is to collect and study scientific and technological objects, hold exhibitions related to science and technology and promote education as well as provide the public with a place for leisure and lifelong learning.

Located on Jiouru 1st Road, Kaohsiung City (originally City Park No. 6), the museum covers 19.16 hectares of land. The buildings contain a total building area of 20,756 m² and the floor area is 114,355 m² with 36.89 meters of structural height.

(1)North building: 15,313 m² of building area is used for the administration center, permanent exhibition halls, temporary exhibition halls, IMAX[®] 3D Theater, Multimedia World and maintenance and repair facilities as well as for gift shops.

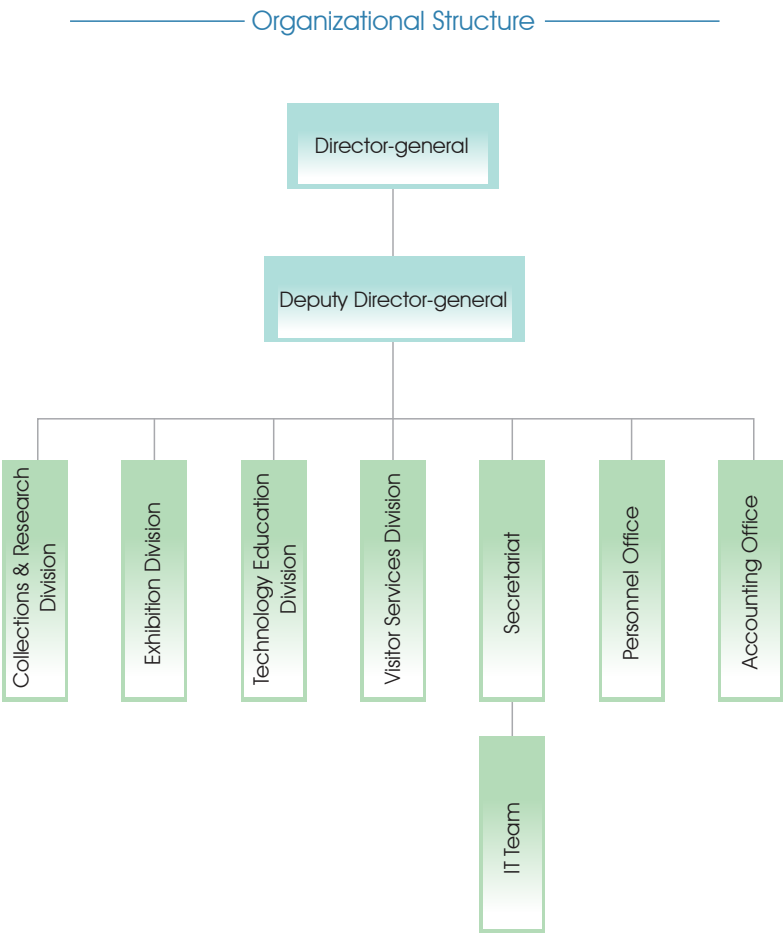
(2)South complex: 5,443 m² of building area is used for the library and audio-visual center, research center, auditorium, lecture theater and storage room.



2. Organization and Staffing

(1) Organization

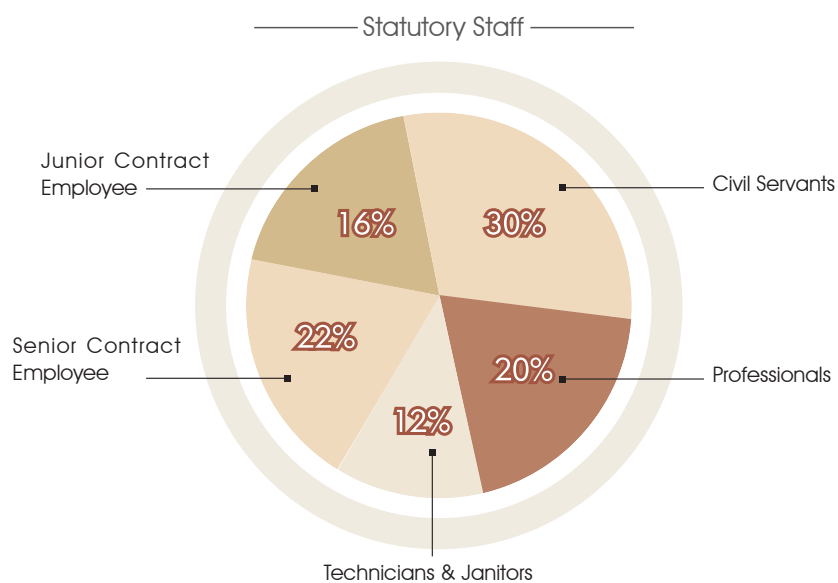
In compliance with the temporary organizational rules of the NSTM and the organization chart stipulated and issued by the Ministry of Education on December 30, 1996, a director-general and a deputy director-general were placed over the Exhibition Division, the Technology Education Division, the Visitor Services Division, the Secretariat, the Personnel Office and the Accounting Office. To meet the development requirement of the museum, an IT team and a Collections and Research Team was established on July 16, 1998 and February 1, 2001, respectively. On August 5, 2003 the Ministry of Education approved the temporary organizational regulations which allowed the museum to officially establish the Collections and Research Division on September 1, 2003. This establishment was later agreed by the Examination Yuan on September 22, 2003



(2) Number of Staff

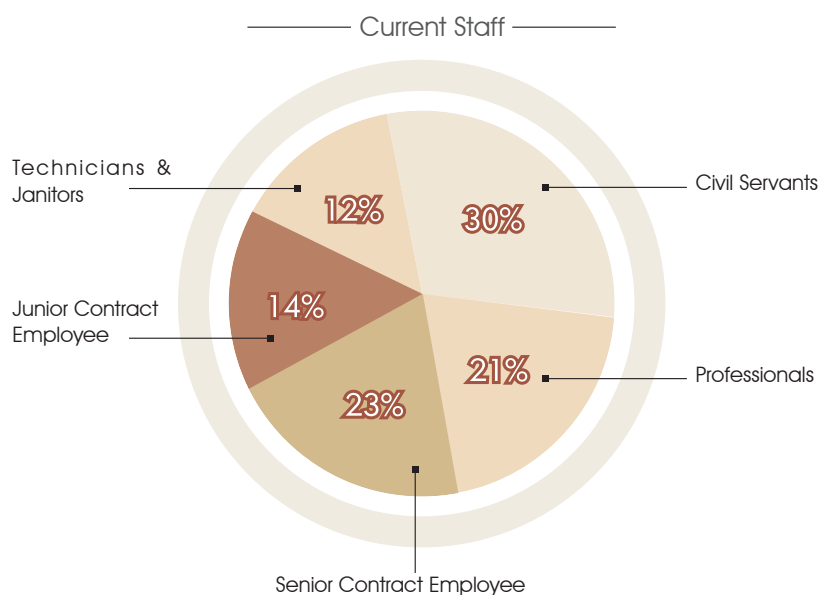
a. Statutory Staff

In accordance with the law, the museum is allowed to employ 42 civil servants, 28 professionals, 16 technicians and janitors and 53 contract personnel. The museum is allowed to employ a total of 139 staff members



b. Current Number of Staff (December 2009)

In compliance with the government's downsizing policy, the museum has stopped hiring contract personnel, technicians, and janitors. Currently, the museum employs a total of 136 people, including 42 civil servants, 28 professionals, 50 contract personnel and 16 technicians and janitors.



(3) Educational Backgrounds of Staff

a. Educational Backgrounds

Currently, the museum employs a total of 136 people. Out of these, 10 staff members have Ph.D. degrees, 57 have master's degrees and 37 have bachelor's degrees (including those who graduated from police or military academy). 26 graduated from junior colleges, 5 from senior high schools and 1 from junior high schools.

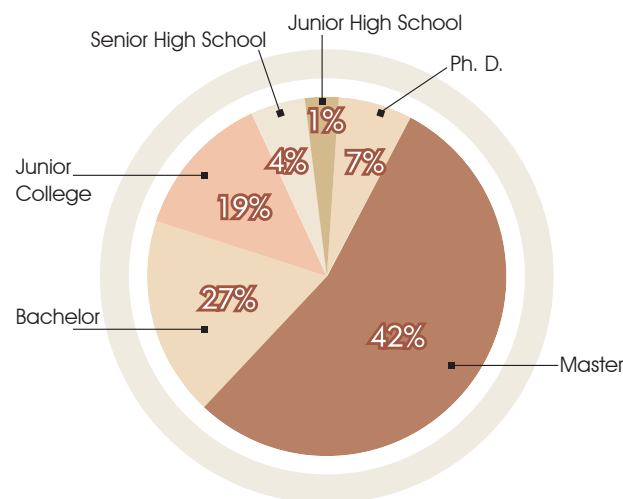
b. Educational Backgrounds of the Professionals

The museum currently employs a total of 28 researchers, including 6 with Ph.D. degrees, 21 with master's degrees and 1 with bachelor's degrees.

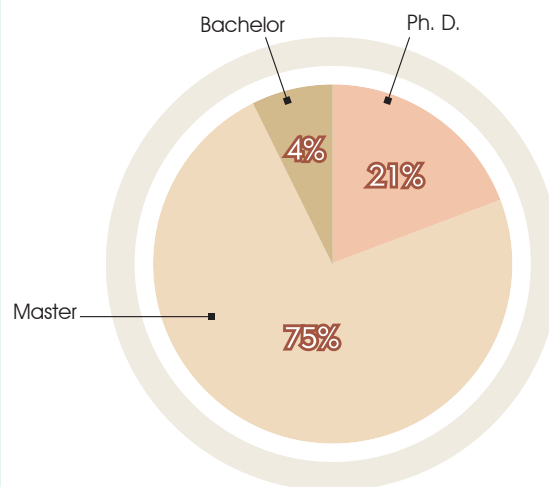
c. Professionals' Specialties

There are a total of 28 professionals, 7 specializing in science and engineering, 6 in education, 6 in design and 10 in humanities and social science.

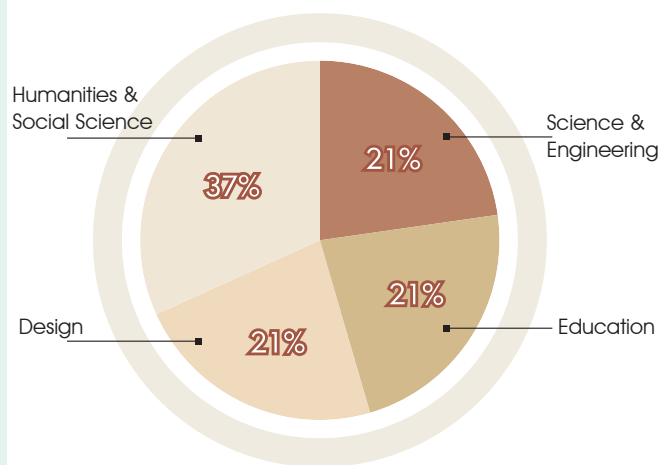
—— Educational Backgrounds of Staff ——



—— Educational Backgrounds of the Professionals ——

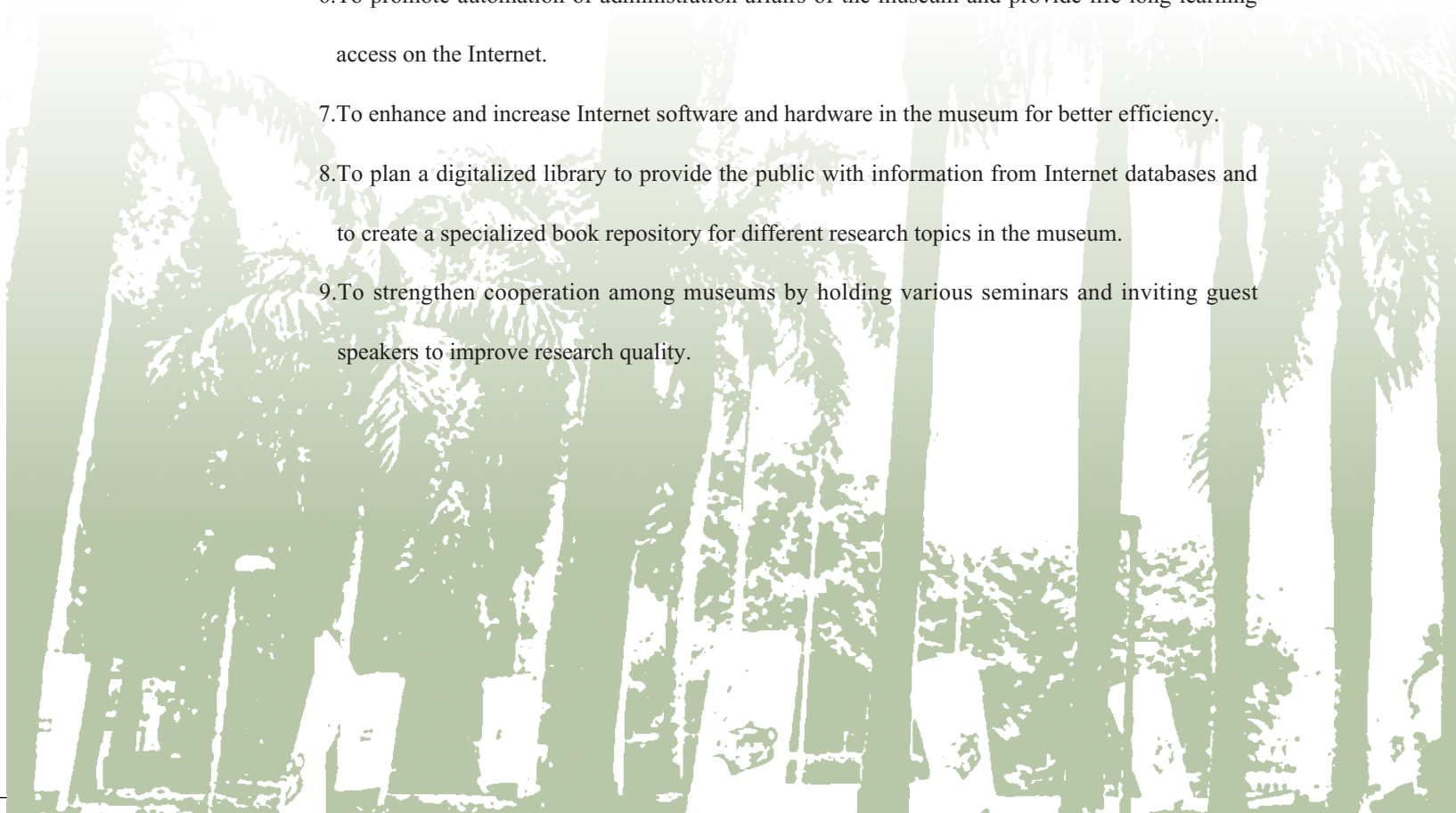


—— Professionals' Specialties ——



3. NSTM's Development Objectives

- 1.To reinforce technological collections management and research: continuation of holding conservation and maintenance seminars and improving the conservation environment, as well as strengthening research and applications for technological collections.
- 2.To establish an exhibition renewal mechanism and gradually alter exhibitions, so as to vitalize the exhibiting functions of the NSTM and make the NSTM a venue for displaying the industrial achievement of Taiwan as well as permanent establishment to record important industrial achievement.
- 3.To develop new teaching aids and combine resources from businesses, schools and society to organize more activities for technology education.
- 4.To enhance public services, utilize the power of the media as well as community resources and establish a diversified marketing strategy to increase the number of visitors.
- 5.To strengthen public safety around the museum and create quality visiting environment for better service.
- 6.To promote automation of administration affairs of the museum and provide life-long learning access on the Internet.
- 7.To enhance and increase Internet software and hardware in the museum for better efficiency.
- 8.To plan a digitalized library to provide the public with information from Internet databases and to create a specialized book repository for different research topics in the museum.
- 9.To strengthen cooperation among museums by holding various seminars and inviting guest speakers to improve research quality.





Operations and
Achievements

1. Collections and Research

(1) Introduction to Collections and Research

In September 2003, the Collections and Research Division of the National Science and Technology Museum was officially established. This Division is in charge of relic accessioning, archiving, preservation, research, and academic exchange activities. The NSTM's collections are classified into the following categories: apparatus, printing, crafts, information science, machinery, textile, medicine, architecture, agriculture, documents, and others.

In 2008, operations of the NSTM publications and Library and Audiovisual Center are assigned to the Collections and Research Division.

NSTM's Mission of Collection

- To explore the fundamental theories and development of technologies
- To record the significant events and influences of technology development to the nation's industrial development
- To retrace the development of technology and offer the public an insight into the interplaying effects of technology and the society
- To highlight or demonstrate the significant technological achievements of the nation
- To study the nation's technology related cultural assets and facilitate studies, exhibitions, and education for the international society.

NSTM's Collection Goals Based on the Current Strategic Developmental Stage and the Needs of Planned Studies

- Specimens, data, and objects targeted for NSTM's exhibitions or educational projects.
- Significant industrial relics and data that are disappearing due to socio-economic advancement.
- Objects and oral history that are considered as evidences or of certain significance to the development of technology and industries in Taiwan.
- Specimens which substantially represent the scenarios and issues of interactivity between technology and the society based on the concept of "collecting for the future".
- Industrial remains and specimens discovered from planned industrial archeology.



(2) Major Achievements

Reinforce collection management and research of technology relics: this is achieved through continuous and expanded relic collection, research of subjects related to industrial cultural assets, forums for preservation and maintenance of technology relics, in aim to substantiate research and application of the museum's technology collections.

a. Active accessioning of collections and implementation of relic utilization and research:

A total of 78 items were registered into the archive, including donations, acquisitions, and purchases. A total of 1,499 items belonging to Chunghwa Telecom are under temporary custody of the NSTM.

Statistics of the Collections of the National Science and Technology Museum

Item	Total	Acquisitions	Purchases	Donations	Transfers	Others	Total Items of Collections by End of Year	Custodian
2005	153	65	46	38	4	0	762	834
2006	33	4	15	14	0	0	795	277
2007	82	15	1	61	5	0	877	380
2008	194	7	1	157	29	0	1071	0
2009	78	0	27	51	0	0	1149	8



◆ Aerospace Industrial Development Corporation donated the full-scale wooden model of the IDF fighter, which was exhibited in the museum's lobby on the 20th anniversary of IDF's virgin flight May 28th, 2009.

b. Interview with Significant Figures in the Industries

In 2009, NSTM completed oral history interview with representative experts and 12 significant figures in Taiwan's Food Industry. The interviews are recorded and consolidated into the history of Taiwan's representative industries.

The interviews also included three technicians from former Taiwan Machinery Manufacturing Corporation (Mr. Hsu Wen-Tsao and other two persons), one employee of Kaohsiung Ammonium Sulphate Company, and one employee from the ship-making industry.

Summary of the Oral History Interview with Persons from Taiwan's Food Industry

No.	Name of Interviewee	Current Position & Experiences Relevant to the Subject of Interview	Subject	Representativeness	Historic Significance
1	Kao Kuang-Yu	Owner of Beigang Chuan Mei Oil Company	The present and traditional oil manufacture process and development of technology	Preserves the traditional oil manufacturing technology	Representative of Taiwan's traditional oil manufacture technology
2	Tsai Chun-Hung	Former owner of Beigang Chuan Mei Oil Company	The development of oil manufacture technology and traditional oil manufacture technology	Master of traditional oil manufacture	Technician of traditional oil manufacture
3	Lin Wen-Chang	Director of Oil and Grease Division, Siaogang Plant, Taiwan Sugar Corporation	Development of oil manufacture technology and history of Siaogang Plant of Taiwan Sugar Corporation	Manufacturer specializes in solvent extraction	The first company in Taiwan to use solvent extraction technology for oil manufacture
4	Wu Wu-Hsiung	Chairman of God Bene Enterprises Co., Ltd.	Yuanshun Co. and traditional oil manufacture technology	Traditional oil manufacturer and inventor of sesame germination technology	The process of industrial upgrade and technology innovation in Taiwan's traditional oil manufacture industry
5	Chen Chi-Yuan	General Manager of God Bene Enterprises Co., Ltd.	Yuanshun Co. and traditional oil manufacture technology	Traditional oil manufacturer and inventor of sesame germination technology	The process of industrial upgrade and technology innovation in Taiwan's traditional oil manufacture industry
6	Lu Hsun	Director of China Grain Products Research and Development Institute	Development of grain products in Taiwan and overview of the China Grain Products Research and Development Institute	A key institution involved in research of grain related food manufacture technologies in Taiwan	The first grain product research and promotion institution in Taiwan

7	Wu Jen-Chun	Chairman of Wan Jia Shan Brewery Co., Ltd.	Development of soy sauce manufacture technology in Taiwan	Representative of Taiwan's fermented food industry	Soy manufacture company that has gone through the age of foreign aids from the US
8	Shih Kun-Ho	Deputy Director of China Grain Products Research and Development Institute	Development of western style bread and pastry products in Taiwan	A key institution involved in research of grain related food manufacture technologies in Taiwan	The first grain product research and promotion institution in Taiwan
9	Li Hua-Yang	General Manager of the Consumer Health Group of the Uni-President Corporation	Development of Uni-President Bakery and the bread and pastry industry in Taiwan	Representative manufacturer of breads and pastries in Taiwan	Leader of chain bakery in Taiwan
10	Hsu Hua-Chiang	Former Director of China Grain Products Research and Development Institute	Development of the China Grain Products Research and Development Institute and the bread and pastry industry in Taiwan	A key institution involved in research of grain related food manufacture technologies in Taiwan	The first Taiwanese trained in the American Institute of Baking
11	Fan Te-Chung	Former Chief Logistic Officer, Taitung Sugar Plant, Taiwan Sugar Corporation	Development of pineapple canning industry in Taitung Sugar Plant	Representative of Taiwan's pineapple canning industry	Operations of the pineapple canning plant in Taitung Sugar Plant at the early stage of development
12	Li Hsiung-Ching	Chairman of Jiu Zhen Nan Taiwan Pastry Co., Ltd.	Development and innovation of Jiu Zhen Nan Bakery and Taiwan's traditional pastry	Representative of Taiwan's traditional pastry	Century-old manufacturer of traditional pastry

c. Digital Archiving of NSTM's Collections

For the category of document archives, 1,399 photos of Armory 26, 155 telecommunication frameworks, 304 telecommunication relics, and 45 volumes of precious Chunghwa Telecom Administrative Press were digitalized.

d. Utilization of Collections

NSTM's Collection Evaluation Committee approved the following collections- over 500 relics of Taiwan's TV Industry, including video recordings and photography of professional TV production quality and post-production facilities. These relics are currently stored in the temperature and humidity controlled storage. In August 2009, several experts assisted the museum to select 30 items from the collection for exhibition. The exhibition, entitled "The Prototypes of Taiwan's TV Industry", was held on the 1st floor of the NSTM for 40 days (from September 5 to October 15, 2009).



◆The Prototypes of Taiwan's TV Industry

Statistics of Utilization of the Collections of the National Science and Technology Museum

	Total	Research	Education	Comparison for Authentication	Exhibition	Others
2005	294	78	5	0	176	35
2006	754 (including 550 custodian items)	3	5	0	592	154
2007	661 (including 550 custodian items)	3	0	0	Including custodian items	30
2008	1030	0	11	20	628	375
2009	1399	27	Relic Maintenance Practicum	Typecasting machine	Including custodian items	465

e. Establishment of the Open Storage

The open storage provides the audience the opportunity for "behind the scenes" observation of the museum's collections that have not been exhibited. The NSTM is expected to make the precedence in Taiwan for opening its storage to the public.

The Open Storage project is approved by the memorandum of Ministry of Education No. 0960149365 issued on October 2nd 2007. This memorandum states that, based on the "National Social Education Institution Service Upgrade Phase 2 Program- Permanent Exhibition Upgrade Project", the detailed planning are to be conducted by the NSTM in 2007 and the Ministry of Education agrees that the fund will be provided by the funding planned for 2008 service upgrade program. The project was completed in August 2009 and launched into a trial run in March 2010.

- a) Manifestation of the contemporary museum management concept of "coming close to the people": Through the Open Storage, the long hidden collections are brought closer to the public and the storage becomes a space that provides close-up views for experience and research of museum collections. Through the see-through partition, people gain the access to learn how collections are preserved and stored in the museum storage.
- b) Inspiring children's interest in science: the NSTM strives to collect and study relics that are significant to the development of technology in Taiwan. From the "open collections", people have the opportunity to witness live work process of collection management and research and this knowledge of "behind the scenes" work will inspire the children's interest in science and help them to develop the ability of thinking in science.



f. Reading Cultural Relics: from April 17th to May 18th 2009

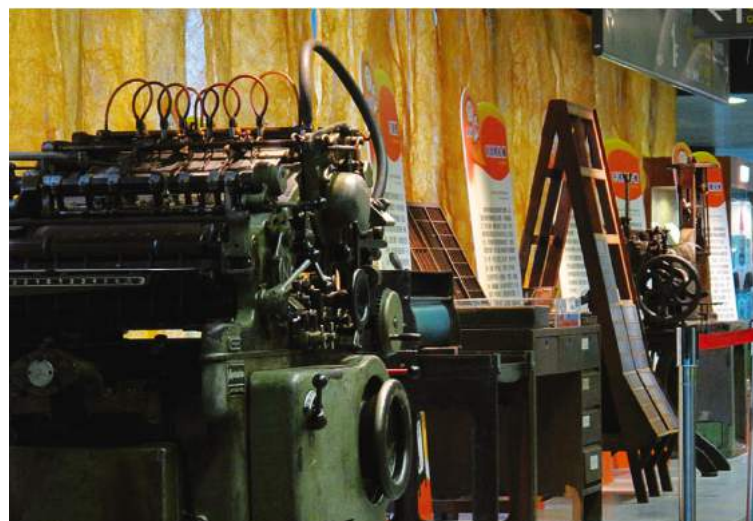
In coordination to the April 23rd International Book Day and May 18th International Museum Day, NSTM hosted the Cultural Asset Series "Printing and Us" which brought printing related relics to the audiences. The content included relic exhibition, DIY classroom, cultural asset book show, images of the printing industry, and reading challenge game. Through the exhibition and book reading, this event brings the audiences to know the connotations of the museum's collections and the importance of cultural asset preservation.

During the exhibition, the NSTM showcased a series of precious printing collections, including the type casting machine, proof press, binding machine, type rack, 5mo typographic press, and the peripheral relics. All of these exhibits are disappearing in the information age. It is a great opportunity to gain an insight of the letterpress industry and this event received positive responses from the students.

On the weekends during the exhibition, a book show, entitled Troop of Culture and History, was held, which features publications relevant to culture and history of the industries. The film show featured a documentary of technical heritage entitled Amour Types, which brought the old printer masters at work back to life. And the DIY classroom launched the "Animation Booklet" and "Card Embossing" activities, which were the favorites of the children.

g. Publication of academic periodicals includes Technology Museum Review (quarterly), Taiwanese Journal for Studies of Science, Technology, and Medicine (bi-annual), and NSTM Newsletter (bi-monthly). Each year, periodical publications are published to report the operations of NSTM in the previous year.

h. Industrial cultural asset book reading events (for sugar, tea, salt, bicycle, shoe-making, and printing industries) were held. Onsite visits were integrated into the events to bring the audiences into the real practice of industrial manufacture as a way to promote reading of industrial cultures and raised the awareness for the preservation of industrial cultural assets.



i. From September 21st to 22nd 2009, NSTM hosted "Reading and walking the City 2009- Dong Gang" workshop; this was the first workshop ever to incorporate a city's cultural assets and industrial cultures into a library reading activity.

Many who grew up on this land may have very little knowledge in the city we live in. Therefore, the Collections and Research Division makes an attempt to organize a workshop. Metaphorically, the city is a book and, through discussions based on academic theories and researches and reading of research literature and books, as well as onsite visits, we aim to bring the people to know the history, geography, industries, cultural assets, and folk customs in-depth. And such knowledge will help the culture and heritage to be passed down and rooted deeply in the future generations.

In 2009, the NSTM set Dong Gang as the first stop; Dong Gang is a township characteristic of the fishing industry and rich folk cultures. Professor Liu Ting-Yang from National Kaohsiung Normal University helped in the design and planning process of this program. The rich content included learning of Dong Gang's geographic features, history, culture and customs, development of the characteristic fishing industry, the new values in culture and creativity of the industries, the essence and historic sites of the rites and ceremonies, and the traditional ship-making technology in the craft of the King Ship (wang chuan). The program was conducted with a mixture of guided reading and guided tours. Professors Wu Lien-Shang, Li Fong-Mao, Chen Jeng-Horng, Chiou Wann-Duen, and Hong Wan-Lung lead the participants to read about the city, and Mr. Su Huang-Wen and several other local volunteer guides lead the participants to see and observe the sights and sounds read in the books.



◆Reading and walking the City 2009- Dong Gang Workshop Seminar



◆Reading and walking the City 2009- Dong Gang Workshop participants visited the Dong Gang Fishery Culture Center



j. In this year, the NSTM completed the setup work for the Telecommunication Framework Digital Archive website, which is now open to the public at <http://atna.nstm.gov.tw/>.

k. The NSTM's Collections and Research Division is commissioned by the National Archives Administration to conduct the "Kaohsiung Ammonium Sulphate Company" Archive Study and Compilation Project" (March 16th to September 15th 2009).

l. In 2009, the NSTM published six issues of the NSTM Newsletter with a total circulation of 100 thousand copies, two issues of Taiwanese Journal for Studies of Science , Technology and Medicine, and four issues of Technology Museum Review. The NSTM also published the book entitled "Philosophy and Practices in Preventive Conservation:Cleaning Cultural Artifacts ".

m. Collection Maintenance: In this year, the NSTM completed maintenance work for 37 items, including assembly and maintenance of the Taiwan-made Tomkins Knitting Machine, repair for the foot-peddles of the bicycle on February 26th, completion of 8 Kaohsiung Ammonium Sulphate Company models from April 21st to 28th, maintenance of 9 printing relics from March 20th to April 13th, which were on exhibition, and cleaning work for 18 relics of home appliances, which were accessioned this year and moved to the Industrial History of Taiwan Hall for exhibition in November. During the maintenance project, an inventory of the relics registered a total collection of 300 pieces. China Steel Corporation commissioned the NSTM's Collections and Research Division to conduct a maintenance project for the company's own museum. Approximately 60 items have been delivered and registered.

n. Review of maintenance works: the NSTM continues to push forward the mid and long term goal of establishing a conservation and maintenance network community. Since 2006, the NSTM has signed an agreement of cooperative program for developing technology cultural relic conservation and maintenance human resources with the Department of Cultural Heritage Conservation of National Yunlin University of Science and Technology. This project extends the possibility for students of cultural heritage conservation to receive internship training at the museum and these internship students will participate in the works of accession, collection cataloging and maintenance, and archiving of relic documents for the key collections of the NSTM, including the wooden mould of Taiwan Machinery Corporation, hat-making machine, and double-action twisting machine. It is expected that in the next stage, the NSTM is planning to expand the museum's capability in maintaining metal machinery relics into development of relic cleaning technologies and upgrade of the micro-identification abilities within the next three to five years. The NSTM will continue to consolidate the successful relic maintenance cases and make them available over the internet, which will serve as the forerunner for the establishment of an online maintenance community.

o. The NSTM teamed up with Tainan National University of the Arts to conduct the "Council of Cultural Affairs (Executive Yuan) Subsidized Colleges for Development of Museum Professionals and R&D Centers" program. In 2009, the NSTM and Tainan National University of the Arts jointly hosted the "Museum and School Science Education" forum and workshop. Many of the NSTM's staffs lectured in this workshop and staffs of the NSTM participated in this workshop free of charge; this workshop received positive responses from the participants.

p. The NSTM teamed up with the Collection Management System SIG of Museum Computer Network Taiwan Chapter to host the "2009 Museum Collection Registration and Management Workshop Series (III): Establishment of Collection Management System and Operation Procedure"; the event was held on July 31st 2009 at the South Complex.

q. The NSTM hosted two "Forums for the Retired Employees of Kaohsiung Ammonium Sulphate Company, Nianlu, and Hualien Fertilizer Corporations " in Taipei and Kaohsiung respectively.



r. "Encyclopedia of Crafts- NSTM's Field Study Group": Based on the collections of the museum, the NSTM established a platform for cooperative research and collection accession between the NSTM and external institutions (private organizations, schools, and industries). Up to date, two regular group meetings for three subjects, Sampan, Kaohsiung Ammonium Sulphate Company, and Broadcasting and TV Equipments in Taiwan during the Earlier Development Stages, have been held.



2. Exhibition Planning and Theater Management

(1) Introduction to Exhibition Planning and Theater Management Operations

- To conduct planning, design, and production of technology relic exhibitions and theater programs, as well as operation, maintenance, and management of equipments
- Works include updating the permanent exhibition hall, organizing proprietary exhibitions, organizing co-op exhibitions, organize road shows and inter-museum exchange activities, and maintenance work for the exhibition hall facilities and the IMAX® 3D Theater.
- In 2009, the museum completed five update projects for the permanent exhibition hall, organized six proprietary exhibitions, 18 co-op exhibitions, and five road shows, conducted repair works for seven exhibits, and continuingly update and maintain the exhibition and theater facilities.

Statistics of Special Exhibitions

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Proprietary	4	1	9	4	6	5	4	7	6
others	5	15	12	13	25	17	20	17	18

The following table shows the five exhibition themes and the exhibition areas in the permanent exhibition hall that are open to the public at the current stage:

Five Themes	Strategies and Goals	Name of Exhibition Hall
National Treasure	This area targets on exhibition of collections representative to the development of the local industries and technologies and showcases the research-oriented characteristics of the NSTM's collections, aiming to develop the NSTM into a more "complete" museum.	Temperature and humidity controlled storage and the open storage (trial run).
Technology Industry	This area links with the industries to record and showcase the dedication and achievements of Taiwan's businesses. Through creative designs, the stories behind the objects are told and very often touch the hearts of the audiences. The special exhibition design is expected to upgrade the added-values of the museum and the industries to create a triple-win situation.	History of Taiwan's Industries, Electronics and Telecommunication, Power and Machines
Life Science	Virtual reality integrates with experiences of the five senses; this exhibition area focuses on the sciences that can be applied in everyday living. It is an exhibition which showcases the technologies used in everyday living and brings the audiences to experience science and technology up-close.	Food Industry, The Diseases Prevention Combat Camp, Mitigation of Natural Hazards, Utilization of Water Resources, Air Navigation and Aerospace, Clothing and Textiles, Transpotation and Civilization
Exploring Science	This is an extension and auxiliary teaching aid for the foundation science education for grade 1 to 9 students; the exhibitions aim to inspire student's curiosity and interest in science.	Biological Technology, Open Science, Science Laureates, Wai-Sci Science Center
Experience for the Children	The fairytale-like set design and fun games give preschool and junior primary school students a jumpstart in science education.	Children's Science Center-Fantasy, Candy House, Magic Land

(2) Major Achievements

a. Panda Longstay Exhibition

This exhibition is organized jointly with the Taipei Zoo. The NSTM breaks through the limits of time and space to bring the people in Southern Taiwan an exhibition of a heated subject, the national treasure class animal- Panda, with the aim to raise the awareness and consensus for animal protection in Taiwan. With the expertise in zoology from the Taipei Zoo and the specialty of the NSTM in



◆Occupational Safety Exhibition



◆Panda Longstay Exhibition

exhibition, this exhibition is designed through the AR-Augmented Reality technology to bring the virtual version of Tuan Tuan and Yuan Yuan to Kaohsiung. Through this exhibition, audiences in Southern Taiwan got the chance to see and pet the pandas, as well as experience the living environment of these adorable animals, in a near real scenario. This exhibition was held from May 23rd to October 18th and over 200 thousand people visited the exhibition.

b. Occupational Safety Exhibition

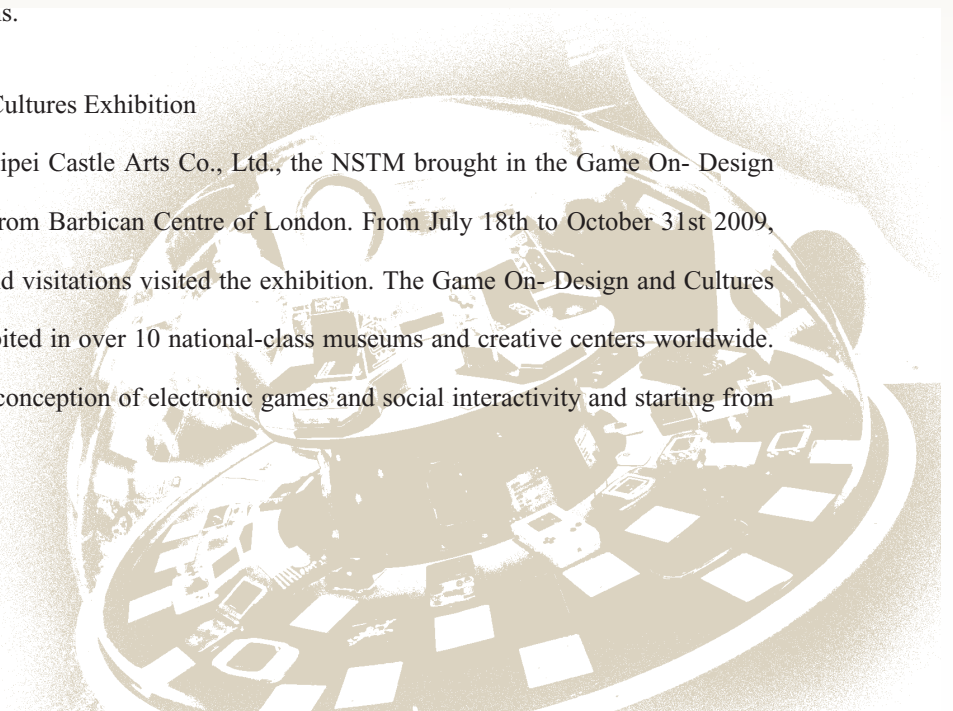
Kaohsiung is a city of heavy industries with a large population working in factories. Under continuous economic development and changes in the social structure, the demand for labor force surged, and so did public safety issues. This exhibition highlights the importance of occupational safety and hygiene through the angles of industrial and social development, emphasizing the value- "Life is priceless; occupational safety comes first". In this exhibition, various scenarios of occupational hazards are organized into different industrial categories and showcased to the audiences, in aim to raise the awareness of the public and trigger people's interest to survey the environment they work in everyday. Different themes are featured in this exhibition, including "Industrial Standards", "How much do you know about occupational hazards", "Dare to Show-Keep Away from Occupation Hazards", and "Happy March". The NSTM utilized multimedia technology to create a "garden" of exhibitions, which presents rich, rare, and fun contents through sensational visual and audio technologies. Simulated experiences turn the audiences into experts through computer, game, and reality theater technologies. This exhibition was jointly organized with the Institute of Occupational Safety and Health (Council of Labor Affairs) with a funding of NT\$10 million for exhibitions and promotional campaigns. The exhibition was held from June 19th to December 27th 2009 at B1 Special Exhibition Hall III of the NSTM and, exceeding expectation, over 150 thousand visitations visited this event.

c. Marine Kaohsiung Exhibition

Taiwan is a maritime country and Kaohsiung City is the only metropolitan area with an integrated harbor. Oceans have profound influence to the City of Kaohsiung and led the region of Southern Taiwan to develop unique culture, economy, customs, and lifestyles. To introduce the unique maritime culture, environment, industries, and history of Kaohsiung to the nation, the NSTM specially teams up with the Kaohsiung City Marine Bureau and launched the Marine Kaohsiung Exhibition; this exhibition offers the audiences rich knowledge of marine science and brings the audiences to experience the close relationship between men and the oceans. "Oceans are so much fun" and so close to our lives; we aim to bring the audiences to take a step further to know the oceans surrounding us and put in extra care for our environment. This exhibition features five major themes, including Salty Sea Breezes, Kaohsiung Harbor, The Kingdom of Yachts, Fishery of Kaohsiung, and Happy Harbor City, showcasing the history of Kaohsiung, the past and present of Kaohsiung Harbor, marine pollution control, the yacht industry, Kaohsiung's deep-sea fishery, deep-frozen tuna, conservation of fishery resources, and the city planning of Kaohsiung as an Maritime City. Through fun interactive installations, high-definition audio and visual facilities, and 3D exhibition design, this exhibition aims to reinforce people's knowledge towards the oceans and bring people to see the close relationship between the development of Kaohsiung and the oceans, as well as induce the local communities to consolidate their sentiments towards the maritime culture of Kaohsiung City and the maritime technology developed in the city. This exhibition was held over a period of 78 days from June 26th to September 27th 2009 and attracted a total of 91,617 visitations.

d. Game On-Design and Cultures Exhibition

Jointly organized with Taipei Castle Arts Co., Ltd., the NSTM brought in the Game On- Design and Cultures Exhibition from Barbican Centre of London. From July 18th to October 31st 2009, approximately 99 thousand visitations visited the exhibition. The Game On- Design and Cultures Exhibition has been exhibited in over 10 national-class museums and creative centers worldwide. Tackling the issues from conception of electronic games and social interactivity and starting from



the elements of wild imagination, advanced technologies, humanities, and aesthetics, this exhibition showcases the creative process of electronic games through manuscripts, drawings, amended versions, magazines, films, and actual objects. Over 100 electronics are open for hands-on experience onsite; this event brought the children and adults, students, parents, and teachers, and enthusiasts of creative cultures to discover that "having fun" is another way to stimulate the best values of humanities right inside of a museum. This exhibition inspires the audience to discover science, history, and creative designs inside of electronic games. The Game On- Design and Cultures Exhibition features 13 theme areas, including early arcade games, games consoles, game families, the making and marketing of games, g1.games culture USA and Europe, games culture Japan, character design, kids games, sound, cinema, multiplayer games, magazines, and future technology, the above 13 names are exact quotes from the original game-on blog).



◆ Marine Kaohsiung Exhibition



◆ Game On- Design and Cultures Exhibition

e. Taiwan Sustainable Campus Road Show

This exhibition integrates the achievements of the sustainable environmental education program, which is promoted by the Ministry of Education for many years, into fun and interactive exhibition designs. The contents of this exhibition focus on applications and campus upgrade as the initiatives and extend into the subject of community development. This road show aims to serve as a platform for social education and a bridge for policy promotion. The exhibition is designed into three different subject areas:

Zone A: Sustainable Campus

From 2002 to 2009, the sustainable campus program went through four stages: green schools, new campus movement, green campus campaign, and sustainable campus projects. Through the efforts of the government and the schools, the concept of sustainable campus manifests the most original life force on campuses in the northern, central, southern, and eastern regions of Taiwan.



◆Taiwan Sustainable Campus

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Zone B: Harvest

a) Water-saving and Water Environment

Campuses use rainwater recycle system to store water, proactively install water-saving devices to minimize use of resources and cut down the water bills, and set up natural water purification systems on campus.

b) Energy Utilization

On campus, we turn off energy consuming devices when not in use and install energy-saving appliances to minimize energy consumption and, on the other hand, we use renewable, i.e. solar panels and wind power generators, to cut down use of other energy resources.

c) Healthy and Efficient Learning Environment

We create a healthy indoor environment by paying attention to the physical measurements, i.e. temperature and humidity, and illumination of the classroom lighting, as well as being creative to improve the facilities through the resources in the environment.

d) Sustainable Ecological Cycle

This area showcases the projects which maintain the genetic, species, and ecological diversity on campus.

Zone C: Sustainable Environment Education on Campus

This area integrates the achievements of sustainable campus and the concept of carbon emission reduction into a dice game and, through scenarios of field trips, the audiences are guided to explore and survey the behaviors and ethics in the environment.

This exhibition was held from December 8th 2009 to February 21st 2010 and attracted a total of 27,247 visitations.

(3) Other Achievements

a. Magic Land opens at the Children's Science Center (stage III exhibition)

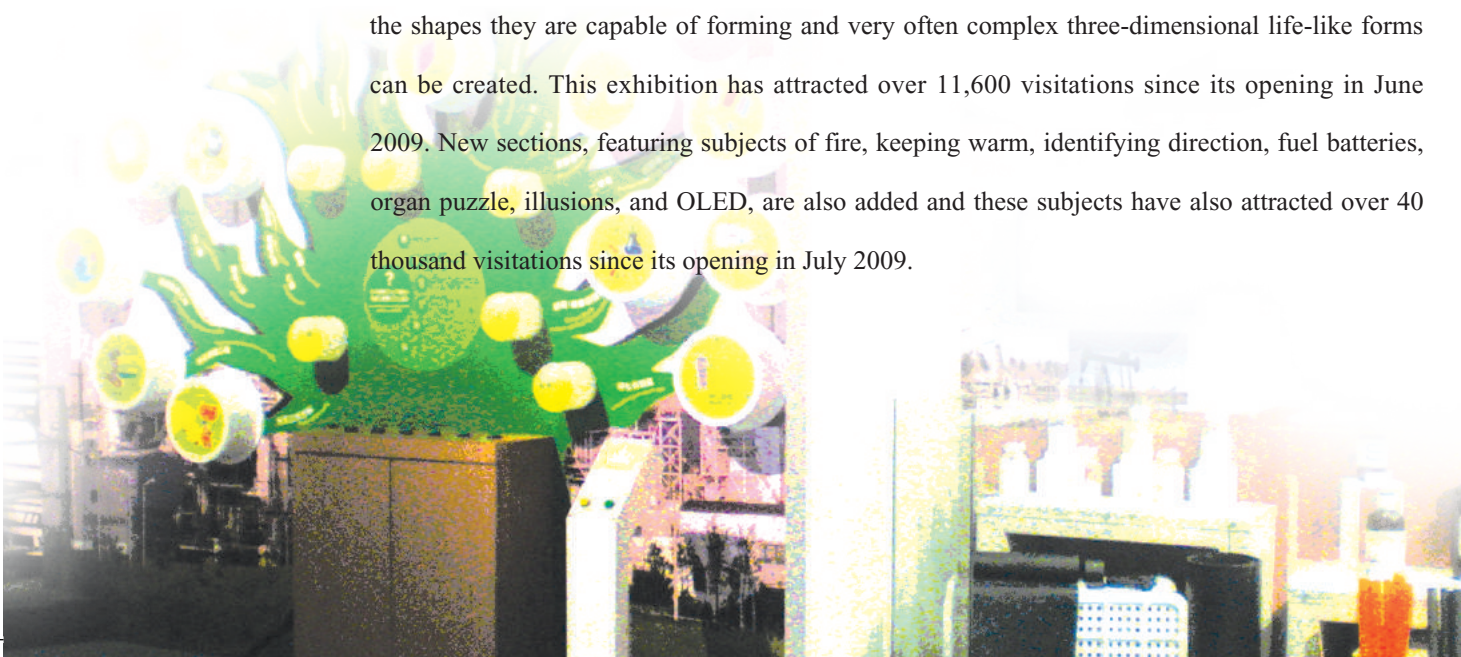
The Children's Science Center is a must-go place of families and children's groups. The third stage theme, Magic Land, was opened on March 31st 2009, featuring the magic of lights, sounds, and image science. The exhibition is designed based on the backdrop of a magic forest, a magic village, and the castle of light, which attracted over 150 thousand visitations during the exhibition period. The fun experiments and games offer the audiences very different contents and experiences.

b. Experiencing the Power of Wind and Rain is added to the Utilization of Water Resources Exhibition Hall

This exhibition aims to bring the audiences the knowledge of the hydrologic cycle, instill the concept of treasuring water resources, and provide the knowledge of preventive measures for wind and rain related disasters. Through innovative exhibition technology and techniques, the NSTM focuses on promoting the concept of "knowing water, loving water, and saving water resources" to raise public awareness the cultures of water. This exhibition has attracted 4,877 visitations since its opening on April 11th 2009.

c. Exhibition Update for the Open Science section

The Magnetic Fluids unit in the Open Science section (part of the permanent exhibition hall) showcases the magic of magnetic granules, which is composed of micro magnetic particles carried in a water or oil based fluid and this fluid often appears in a black liquid form carrying strong magnetism. Magnetic fluids are far more versatile than the regular iron sand in terms of the shapes they are capable of forming and very often complex three-dimensional life-like forms can be created. This exhibition has attracted over 11,600 visitations since its opening in June 2009. New sections, featuring subjects of fire, keeping warm, identifying direction, fuel batteries, organ puzzle, illusions, and OLED, are also added and these subjects have also attracted over 40 thousand visitations since its opening in July 2009.



d. Stage II Exhibitions for the Industrial History of Taiwan Hall were Opened

Continuing from the success of the first stage Industrial History of Taiwan Hall exhibitions, the Industrial Development Bureau (Ministry of Economic Affairs) launched the second stage exhibition program, which extends the Pioneers of Taiwan's Economic Miracle zone to include exhibitions of five industries: petrochemical, home appliances, food, steel, and semiconductor, and comprehensively showcases the special development track of technology utilization in Taiwan. In addition to films made for the above-mentioned five industries, recordings of interviews with industrial leaders are also showcased, including interviews with Hsu Wen-Lung, Lin Yi-Shou, Hung Yu-Mien, Wu Shun-Wen, and Chao Yao-Tung. The stage II exhibitions for the Industrial History of Taiwan Hall were opened on December 17th 2009.

e. The Tool Machines unit was added to the Power and Machines section

This unit is funded by the Ministry of Education Social Education Institution Service Upgrade Phase 2 Program; the NSTM fully utilizes the museum's three tool machine collections and new exhibition technologies, aiming to bring diversified exhibition contents and increase the visit rate. The installation was completed on December 28th 2009.

f. Installation of interactive exhibitions for the "Reactivate the Corridors" project

The NSTM launched the Reactive the Corridors project in 2009 targeting on the corridors on the fourth floor and B1. The Exhibition Division successfully requested funding from the Ministry of Education and the Secretariat Office oversaw the renovation work for the floor of the B1 corridor. This project reactivates the spaces outside of the exhibition halls and brings surprises to the visitor in the friendly spaces. Five exhibition units are set up in the B1 corridor, including optical science, fly NSTM, dialogue with science, guide service for the key exhibits, and E-notes. A series of cloud-shape benches are installed in the fourth floor corridor, offering better services and movement lines and a space to sit down for a moment of rest.



◆ Stage II exhibitions for the Industrial History of Taiwan Hall

g. Summer Weekend Film Festival

The NSTM launched a trial run for the IMAX Summer Film Festival (from July 11th to September 27th). Films are aired on weekends and the proceeds are shared with the film suppliers to cut down the costs. A total of 45 films were aired, which attracted 1,026 visitations to the events.

h. Exhibition publications won many awards

Exhibition publications for "The Magical Three Minutes- Special Exhibition of Instant Noodles" and "History of Telecommunication in Taiwan won the judge's selection title and "1930s-2007- Taiwan Motorcycle Expo won the selection of honor title in the First National Publishing Award. Furthermore, publication for the "Weights and Measures-Standardizing Modern Society" exhibition was selected for the Taiwan Hall exhibition in the 2009 Frankfurt Book Expo in Germany.



◆Power and Machines-Tool Machines



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j. 2009 High School Students Diseases Prevention Summer Camp and Teachers' Seminars

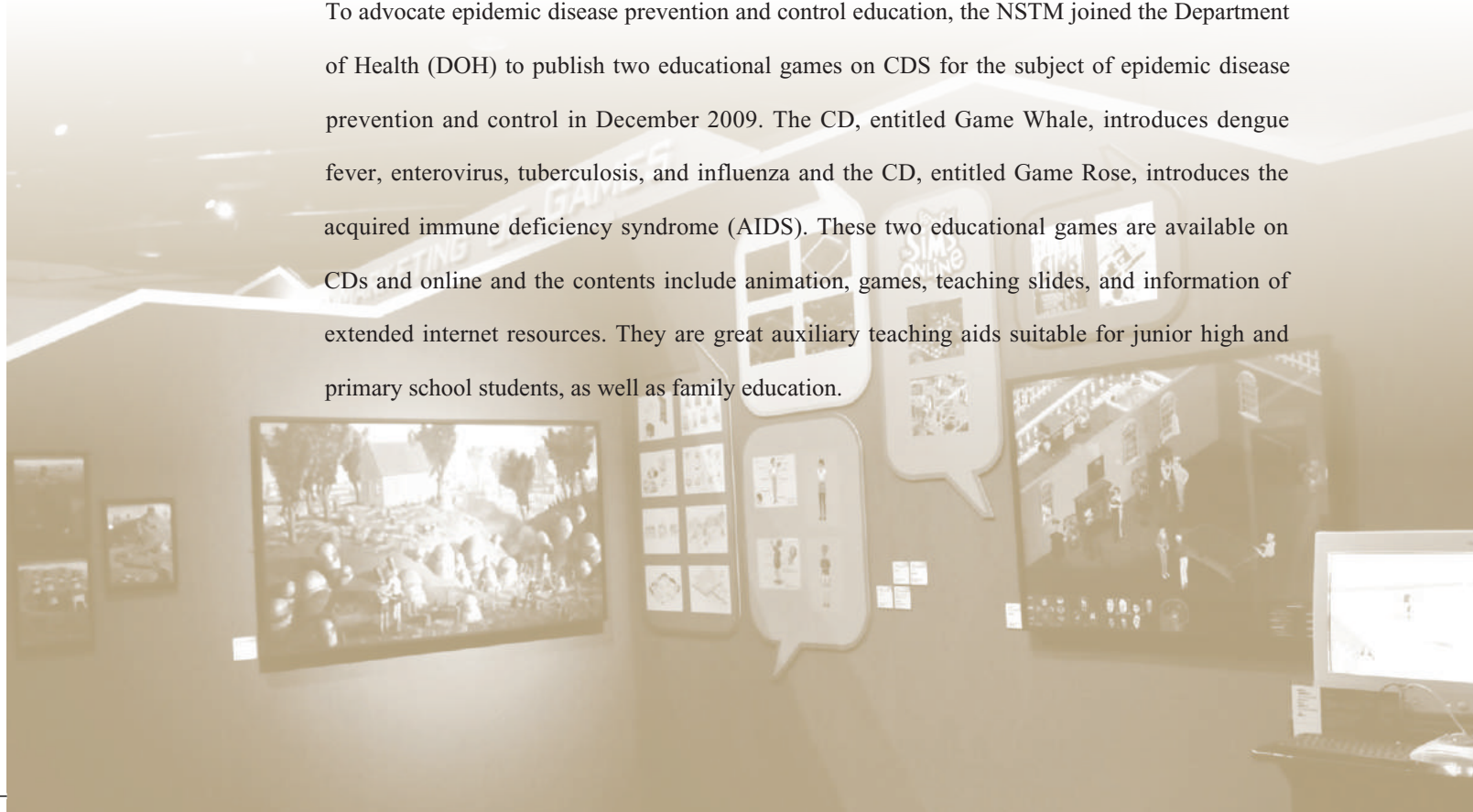
The NSTM joined hands with the Centers for Disease Control to host this project; this project aims to raise the awareness of epidemic disease prevention and control. The 2009 Diseases Prevention Summer Camp was held from July 2nd to 11th 2009 in Taipei and Hualien respectively; a total of 119 high school students participated in this event. The teachers' seminars were conducted in conjunction with the Bureaus of Education of Kaohsiung City, Tainan City, Taichung City, Taoyuan County, Taipei City, and Hualien County; a total of six seminars were conducted and 800 teachers participated in the events.

k. Team Up with Occupational Schools for Exhibition Maintenance

The NSTM teamed up with Darong High School technical education divisions to conduct exhibition maintenance works; this project aims to full utilize the museum's exhibit maintenance resources and bring schools and institutions to participate in the process. With the professional experience of the NSTM staffs and technical know-how of the teachers and students, we expect to boost up our capacities in exhibition maintenance. In 2009, 24 pieces of exhibits have undergone repair and maintenance.

l. Published Educational Games in Compact Disks on the Subject of Epidemic Disease Prevention and Control

To advocate epidemic disease prevention and control education, the NSTM joined the Department of Health (DOH) to publish two educational games on CDS for the subject of epidemic disease prevention and control in December 2009. The CD, entitled Game Whale, introduces dengue fever, enterovirus, tuberculosis, and influenza and the CD, entitled Game Rose, introduces the acquired immune deficiency syndrome (AIDS). These two educational games are available on CDs and online and the contents include animation, games, teaching slides, and information of extended internet resources. They are great auxiliary teaching aids suitable for junior high and primary school students, as well as family education.



3.Promotion of Technology Education

(1) Introduction to Technology Education Services

- Conduct research of science education and facilitate exchange activities
- Reinforce technology education services for rural areas, elderly communities, and indigenous communities
- Conduct R&D for teaching aids and plan promotional events and activities



◆ Echolocation- The Science of Bats

(2) Major Achievements

a.Children's Science Center Series Technology Education Activities

From Fantasy, Candy House to Magic Land, the Children's Science Center advances into a whole new level every year. Targeting on providing in-depth teaching and learning services to preschool children, the NSTM launched 312 events in 2009, which attracted 31,390 visitations. Among the events, opening of the Magic Land features a Magic Land Parade, using the interactive exhibits in the museum to guide the children and parents into in-depth exploration of the exhibition, as well as the meaning of science in the exhibits. The Animation Roulette and Concavo-convex mirror features simple DIY activities in coordination to the optical exhibition inside of the Magic Land. Reception activities for children's groups feature "Echolocation- The Science of Bats" and "Adventure in Africa" in coordination to the acoustics and bats exhibition in the Magic Land and the Fatal Beauty- Traditional Weapons from Central Africa exhibition. The children had the opportunity to "listen, touch, and watch" the exhibits and learn through their senses, and the museum staff led the children in series of role-play and rhythmic activities to give them the experience of diversified cultures.



◆Adventure in Africa

b. Promotional Activities for Energy Conservation and Carbon Emission Reduction

Integrating the NSTM's museum expertise and the central government's energy policy, the museum teamed up with the Bureau of Energy to set up the LOHAS Energy Conservation House. This house which opened on March 14th had been a demonstration place for education of energy conservation in families. The museum offered groups with reserved guided tours and developed much service for the public in summer vacation. Within the year, a total of 7,836 visitations had visited this facility. To develop positive attitude towards concepts of energy-saving and environmental protection, as well as had abilities to act for relevant causes, the NSTM applied for funding from the National Science Council to organize the Creative Energy-Saving Competition and educational activities for energy technology. The creative energy-saving competition urged people to look through consumption of electricity, water, and oil in their home and encouraged them to brainstorm for creative ideas of energy-saving in daily lives. This event attracted participation of 1,531 students in 450 teams from high/occupational schools, junior high schools, and primary schools nationwide. A total of 168 students in 45 teams were entered into the final round and the team with the most creative ideas for water and electricity saving tactics or utilization of green energy was selected as champion and its work was publically exhibited in triangular lobby of the NSTM. Furthermore, energy technology education activities were held at the LOHAS Energy Conservation House and complemented by a series of science exploration activities, including energy-saving for homes, clean energy, and renewable energy; these series extension courses had served for a total of 6,150 visitations. As for four workshop for teacher, there were also held alongside the events and 214 teachers participated in the seminars. These series of events were very well publicized by the media and such wide exposure expanded the scope of influence. Our goal is to make the public become closer to energy sciences and let people understand the effort of government energy-saving promotion. In addition, such as special energy-saving and carbon emission reduction related activities on subjects fuel batteries, wind power generation, solar power generation, and water saving, which attracted a total of 4,013 participants, were also kicked off during the weekends. The NSTM is the first one to apply fuel battery to mini-train as a demonstration for energy education. The train runs on weekends and holidays at the outdoor park and, untill 2009, a total of 100 riding activities serviced a total of 12,625 visitations.



◆Creative Energy-Saving Competition- educational event



◆Creative Energy-Saving Competition- award ceremony

c. Care for the Rural Areas- Extension of Science Education

In an effort to sowing the seeds of technology education in rural areas, the NSTM set up the Science Experiment Station service in 2007 in addition to its on-campus technology education activities. In 2009, the Science Experiment Station project was expanded to Xinmei and Leye Elementary Schools in Alishan Township, Chiayi County and serviced 614 students in 13 schools. Science experiment station at Minzhu Elementary School of Namasha Township in Kaohsiung County was set up in September, but interrupted by the 88 Flood disaster. Therefore, this project was redirected to Minzhu Elementary School Students who were temporarily settled Qishan Elementary School This activity was conducted in December and serviced over one thousand students and teachers. In addition, the NSTM had also requested funds from Jinhong Children's Foundation to set up the creative science laboratory at Qingye Elementary School in Pingtung County and assisted Lingyun Elementary School to set up a science exploration classroom, which was a donation of Professor Hung Lan. The facilities provided students opportunities to explore science and served as a base for extension into the neighboring schools. During the summer, NSTM had also hosted the "Creative Technology Experience Camp" for 131 students from 4 schools in rural areas.. Students participating in the camp were guided to create their own solar power vehicles, mechanical vehicles, and Stonehenge banks by utilizing technology and science.

d. Cross-strait Mechanics Forum and Secondary School Student Mechanics Competition Summer Camp

From 2004, the NSTM has been commissioned by the Society of Theoretical and Applied Mechanics of the Republic of China to conduct the annual Nationwide Senior high School Student Mechanics Competition. There are on average 1,400 students participating in this annual event and compete in both theoretical and application of mechanics. Outstanding students selected from this competition are eligible to participate in the annual cross-strait mechanics forum and Senior high school mechanics competition held in summer. The 2009 Cross-Strait Mechanics Forum and Senior high School Mechanics Competition was jointly sponsored by the Chinese Society of Theoretical and Applied Mechanics and Society of Theoretical and Applied Mechanics of the Republic of China and organized by the Hehai University of Nanjing City, Jiangsu Province, China and the NSTM. A total of 28 representatives from Taiwan and 62 representatives from China participated in this event and the forum and competition was closed with great success. The NSTM has also commissioned to design a flag for Cross-Strait society of mechanics as a pledge of the Cross-Strait mechanics forums since 2010.



◆ Opening Ceremony for the Qingye Elementary School Creative Science Laboratory



◆ Minzhuh Elementary School of Namasha Township- challenge game: air rocket



◆Test Site for the Mechanics Competition

◆Forums for the Elderly Communities

(3) Researches and Consequence

a. The Eighth Nationwide High School Creative High Temperature Superconductivity Competition

This is a creative science competition which has a total of 775 persons in 177 teams participated in this event funded by the National Science Council and integrated with resources from the industries, public sectors, and academic societies. The organizer provides rare Superconductor and teach the participants knowledge of this material through easy-to-learn multimedia courses, information from the Internet, and onsite demonstration before launching the competition. This event aims on teaching students and their advisors the characteristics of the high temperature superconductivity and encourage them to extend their creativity and team spirits. The creative ideas are to be manifested to create designs or models that applicable to everyday living activities. Through this event, we expect to lay foundation of science education.

b. Educational Activities for the weak trend tribal group People (Including the Elderly)

To realize the four goals of education for the elderly (life-long learning, health and happiness, autonomy and dignity, and social participation), the NSTM applied to the Ministry of Education to set up a program of education for the elderly and women (Digitalizing Senior Citizens) and the National Science Council for the Playing Science series general science education programs. A total of three beginner and advanced classes were conducted servicing 70 participants of the "Digitalizing Senior Citizens" program, two forums of the "Health for the Senior Citizens" program were also held, which attracted 71 participants, and 15 experience activities were conducted, which serviced 3,780 visitations.

c. Meeting the Scientists on Sunday Science Lecture Series

From 2003, the National Science Council has been subsidizing this series of activities, aiming to promote science education to the general public. Relevant events are organized by National Cheng Kung University, NSTM, National Kaohsiung University of Applied Sciences, and the National Center for High Performance Computing. In 2009, 11 forums were held in the South Complex of the NSTM, which attracted 2,690 participants. The forums are also aired live over the internet to bring people who are unable to come to the site into instant participation.

d. Activities of the Theme Events

- a) Winter and summer camps: 63 camps, 2,516 visitations
- b) Science theater: 110 sessions, 1,262 visitations
- c) Two Wheels for One Person: SEGWAY Riding activities: 162 sessions, 5,968 visitations
- d) Astronomy activities: 7 sessions, 285 visitations
- e) Festivity events: 43 sessions with 11,995 visitations, including Grace, Happiness and Welcome the New Year, Happy Lantern Festival, Valentine's Day, Mother's Day, and Christmas: Oper Mechanisms and Card Making Activities, Happy Dragon Boat Festival, Fun Mid-Autumn Festival, and Fun Christmas-Challenge Games.
- f) The Art of Science: 17 sessions, 621 visitations
- g) Food Industry Hall-Can Babies: 19 sessions, 550 visitations
- h) DIY Science: for school groups with reservations; 87 sessions, 3,944 visitations
- i) Science Education Activities for special Exhibition:
 - Symbol of Fortune- Exhibition of The Bats: 22 sessions, 530 visitations
 - 「Ju Ming's Living World Series- Scientists: Franklin and Faraday outdoor exhibition and DIY classroom: 32 sessions, 2,924 persons; Science Story Box: 12 sessions, 180 visitations
 - Darwin Now: 9 sessions, 1,150 visitations
 - Marine Kaohsiung Exhibition: 41 DIY sessions, 5,700 visitations and 3 Lecture, 170 visitations
 - 2009 Nationwide Maritime Education Expo: 14 sessions, 5,350 visitations
 - Panda Longstay Exhibition: 228 sessions, 14,665 visitations
 - Occupational Safety Exhibition: 14 sessions, 1,222 visitations



◆ Meeting The Scientists on Sunday Science Lecture Series



◆ Dragon Boat Festival Activities

Out-of-Museum Services: 137 sessions, 36,877 visitations, including Playing Science series general science education programs held in the communities

j) DIY Activities, Tribe Science Experiment Station, Technology Education Programs for Schools in Rural Areas of the Southern Taiwan Region (Use of Energy: Life and Energy), The Energy-Saving Carbon Emission Reduction Series- Creative Energy-Saving educational events, The Energy-Saving Carbon Emission Reduction Series- Green Energy Products and Exposition Carrier Vehicles 2009, Nationwide Secondary School Student Mechanics Competition, 2009 Penghu County Water Conservation Program: Water-Saving Series-Boot Camp for Water Guards, 2009 Taiwan International Nano Science Exhibition- Interactive Nano Science Exhibition and Science Education Activities, 2009 Solar Power Family Challenge Camp, 2009 Family Water Conservation Movement- Love Home, Love Water, Love Earth- Boot Camp for Water Guards, and Information Science Month- Fuel Battery Powered Wooden Horse Activities.

k) Workshop for Teachers: 42 sessions, 1,721 visitations

l) Lecture: 22 sessions, 3,496 visitations, including Meeting The Scientists on Sunday Science Lecture Series, Half a Century of Motorcycles-seminar series, Marine Kaohsiung Series Seminars, Wa-Sci Series-Science Lecture Series, Wa-Sci Series- International Trend of Fishery Policies and Management- Sustainable Fishery, Space Expedition- The 40th Anniversary of Apollo-LOHAS Space- My Space Experience, Education for the Elderly- Health for the Elderly Seminars, Fatal Beauty- Traditional Weapons from Central Africa series seminars, Taiwan's Industries-World Series seminars.



◆Science and Art of Sounds Summer Camp

4. Public Services and Exhibition Guide

(1) Introduction to Public Services and Exhibition Guide Services

- The scope covers promotion, marketing, ticketing, exhibition guide, visitor service, volunteer service, and community relations development.
- Reinforce the functions of the public facilities and services, aiming to increase the numbers of visitation to the museum
- Integrate private resources for community services and to establish a good interactive mechanism
- Plan occupational education, training, and field trip activities to reinforce work efficiency and implement diversified marketing strategies to actively develop a new client base the NSTM has serviced a total of 1,309,951 visitations this year.

(2) Major Achievements

a. High-quality Exhibition Guide and Robot Show Service to Enrich Museum Tours

Mobile Science Show presents scientific principles after the daily robot show. The Open Your Eyes Mobile Guide service, available daily, offers in-depth exhibition guide and introduces the exhibition units in details to provide rich and pleasant museum experiences. Themed guides, available at fixed locations and time slots on holidays, give the visitor right-on-the-spot exhibition guide services.

b. Exhibition Guide Volunteers' Training and Evaluation

The NSTM conducted 24 exhibition guide training courses, 15 seminars, and one field learning activity. At the same time, the NSTM implements skill evaluation to the exhibition guide volunteers for at least twice per year, targeting on the museum's permanent exhibitions. In this year, a total of 89 volunteers passed the evaluations in 154 sessions.



c. A total of 82 marketing and promotional activities were held to coordinate with the special exhibitions, major festivities, and events sponsored by the Ministry of Education.

Statistics of Marketing Campaigns by Year

Category/ year	Special Events	Festivals	Music Concerts	Co- organized Events	Community Events	Community Film Premier	Total
2000	19	3	54	14	18	18	126
2002	84	1	12	8	5	19	129
2003	19	3	9	60	10	10	111
2004	27	2	11	55	0	30	125
2005	43	3	2	72	1	29	150
2006	30	2	0	37	8	30	107
2007	21	2	1	27	9	22	82
2008	74	82	15	93	2	24	290
2009	33	55	12	75	2	24	175

d. Community Services Activities and Relations

NSTM hosted the following events in 2009 targeting on 14 communities in the area based on the guidelines for community service programs:

a) Community Carnival

The Community Tour to the NSTM event was held on April 12th 2009 (Sun.) at the exhibition hall; a total of 12,400 visitations participated in this event. The Community 88 Flood Disaster Relief Fundraising Carnival was held at the Pingdeng Avenue Complex of the NSTM on August 29th 2009 (Sat.) and an estimated number of 21,877 visitations participated in this event.

b. Movie at the IMAX® 3D Theater

A total of 12 movie shows were held in the theater from March 7th (Sat.) to 15th (Sun.), featuring Cirque du Soleil+Ilha Formosan, Century Flight+Voyage to Jurassic Ocean, and The Exorcist; a total 1,897 visitations participated in the events.

A total of 12 movie shows were held in the theater from Aug 22nd (Sat.) to 30th (Sun.), featuring Legends of Pharaohs, The Kite of Benjamin Franklin, Galileo's Pendulum, and The Fight against Viruses; a total 1,819 visitations participated in the events.

e. Expansion of Marketing Channels Through Efficient Utilization of Media Resources

The NSTM delivers exhibition and activity related news through press conferences, news release, and media program recording, in aim to increase the NSTM's media exposure and establish a positive and interactive relationship with the news media. In 2009, a total of 626 news entries relevant to NSTM's events were recorded.

Statistics of Reports on Print Press by Year

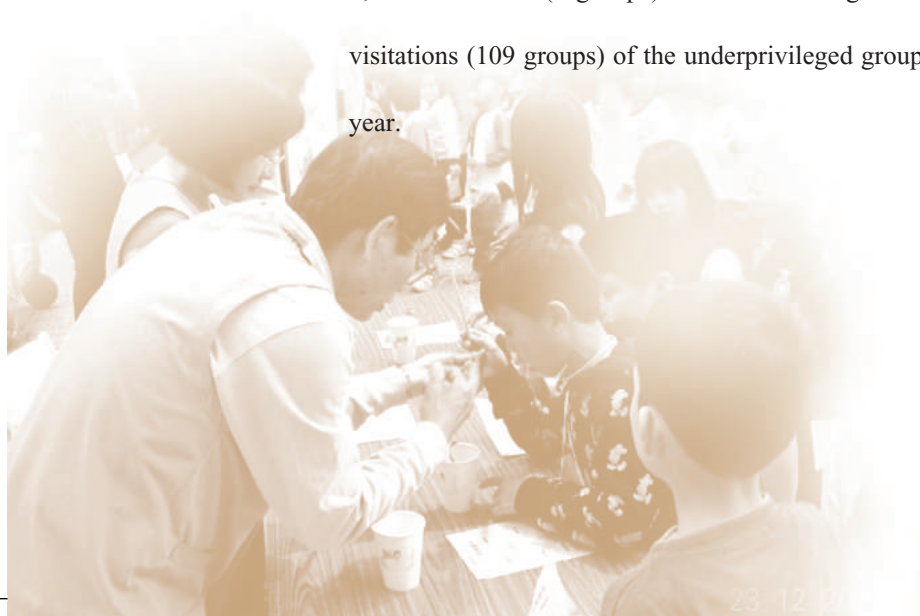
Year	1999	2000	2000	2002	2003	2004	2005	2006	2007	2008	2009
No. of Entries	308	515	292	506	546	783	738	762	697	626	841

Statistics of Reports on Print Press

Month/ media	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
2006 newspapers	34	53	61	56	46	130	100	54	42	57	43	86	762
2007 newspapers	48	83	49	51	77	47	67	67	39	54	53	62	697
2008 newspapers	62	42	66	63	43	34	62	37	36	59	60	62	626
2009 newspapers	65	117	46	80	92	54	96	43	63	55	56	104	841

f. Preferred Discounts and Services for the Underprivileged Groups

2009: Through joint programs with Chunghwa Telecom, National Science Council, and Centers for Disease Control, i.e. Telecom Exhibition and The Diseases Prevention Combat Camp, the NSTM estimated that 10,073 visitations (125 groups) from schools/organizations of rural areas, 2,590 visitations (6 groups) from schools/organizations of 88 Flood disaster areas, and 5,800 visitations (109 groups) of the underprivileged groups (special groups) visited the museum in the year.



g. Cut Down Museum Expenditure by Bringing in Resources in the Society

A total of 29 resources, in the investment value of NT\$3,9274.5 thousand, were made available for marketing of the NSTM events through the following organizations: Hanlin Publishing Co., Ltd., Taiwan Classics Publishing Co., Ltd., Sanlih Television, Taipei Castle Co., Ltd., National Culture and Arts Foundation, Lion Travel Group, Taiwan Kaohsiung Juvenile Court, Public TV Black and White production team, La New Bears, Yoyo TV, Instruments Commercial Association, Kaohsiung Broadcasting Station, National Education Radio, YaoX5D Group, offices of Kaohsiung City Government, Export Processing Zone Administration of MOEA, MOOK Publications, Inc., Taiwan Railways Administration, Kaohsiung Rapid Transit Corporation, National Space Program Office, Yih Dah Co., Ltd., Ju Percussion Group, Kaohsiung City Hakka Affairs Commission, and Taitong Telecom.

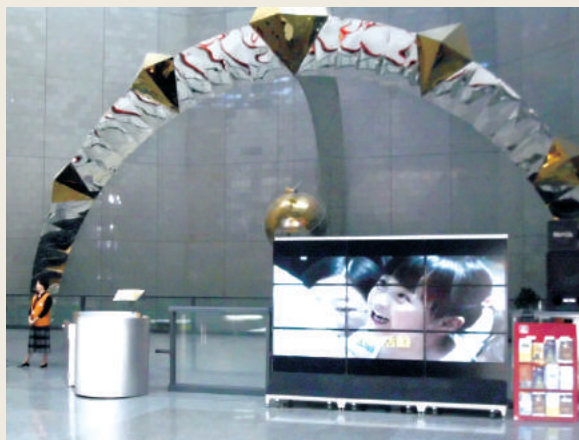


◆Formosa 2- Exhibition of Sky Images Sent by Satellite
Formosa-2- a joint exhibition with the National Space Program Office

◆The 6th Kaohsiung International Instruments Show 2009- a joint exhibition with the Instruments Commercial Association

h. Holiday Feast of Arts

Aiming to present the beauty of technology through the arts, upgrade the quality of performance arts, and instill a culture of art appreciation in Southern Taiwan, the NSTM began to host holiday art performances and activities since last year (2008). This series of activities offer music and theater performances to the museum visitors with goals to bring art education into the lives of people and enrich people's lives through both knowledge and arts. In 2009, a total of 12 performances has been held, which attracted 2,990 audiences to the events.



◆ A new service counter is also added to the lobby, which hosts a range of functions in one place, offering ticketing, information, visitor service, coatroom service, and first-aid service.



◆ The 42-inch display panel set up at the lobby offers visitors information regarding the regular/special exhibitions, time slots for the guided tours, show times for the 3D movies, education events, and conference activities, offering the visitors a reference for scheduling their days and serving as a convenient location pointer for the visitors.

I Opening the Lobby for Multifunctional Uses

The opening of the NSTM lobby expands the spaces and makes the viewing spaces more comfortable; it also highlights another function of the museum- the function of recreation. The well-lit high-ceiling lobby is often bypassed by the museum visitors. It is now open to the public for free entry. From the center of the lobby, the view extends through the glass windows into the greeneries outdoor, so you no longer need to bend down in front of the acrylic ticketing booth in rain or under hot sun for enquires of the tickets and the day events. Yes! The NSTM is now very different. Through the 42-inch display panels set up at most of the main entrance points, visitors to the museum are able to see information regarding the regular/special exhibitions, time slots for the guided tours, show times for the 3D movies, education events, and conference activities. All information of the programs and schedules are available right on the screen and they also service as convenient location pointers for the visitors. A new service counter is also added to the lobby, which hosts a range of functions in one place, including functions of information desk, coatroom, first aid station, and other services. After the lobby is opened to the public, the ticket checking areas were moved to the sides of the walkway, so the Art Café at the second floor can now be accessed from the lobby, as well as the great views.

5. Administration and Environmental Maintenance

(1) Introduction for Administration and Environmental Maintenance

■ The scope covers secretariat, statistics, information, legal affairs, document signing, document processing, general administration, cashier service, custodian, safety, information, machine facilities, maintenance, and other affairs not delegated to other offices.

■ Discussing from the scope of duties, the Secretariat Office is different the general administrative offices, since it is in charge of management and implementation of technical and administrative affairs; other than general administration, the scope also covers machine maintenance, construction and repair, landscape, and information.

(2) Major Achievements and Projects

a. Implementation of the Stage 2 Service Upgrade Program

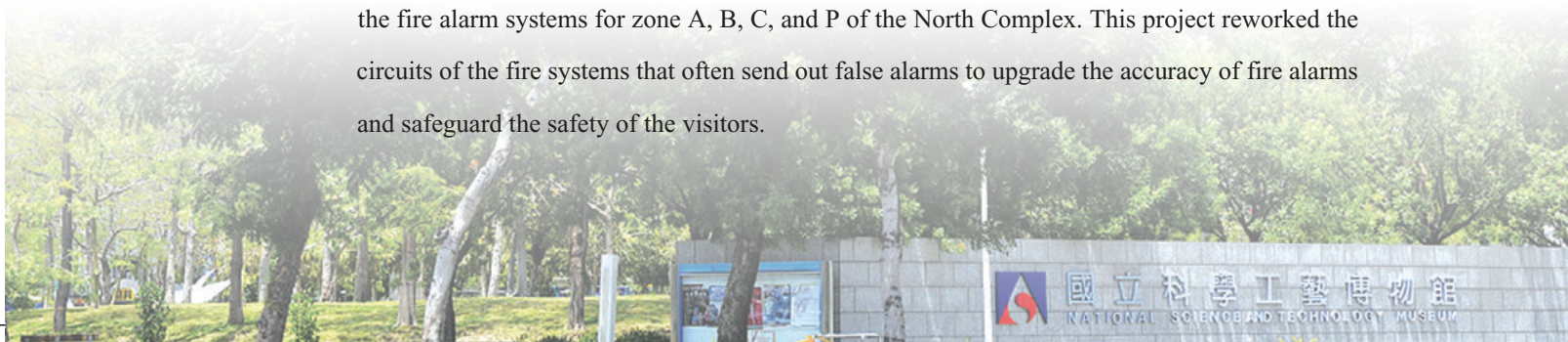
a) Improvement of the air-conditioning facilities for the South Complex (NT\$4.05million):

This project improved the air-conditioning facilities in the conference room and added new air-conditioning facilities to improve the quality of air and achieve the goal of energy-saving and carbon emission reduction; a reduction of electricity usage for 100 thousand kilowatt-hour compared to the same period of last year.

b) Improvement project for the easy-access facilities (NT\$3.30 million): the project installed edge protection for one staircase, improved stair railing for one staircase, improved five easy-access elevators, and upgraded easy-access facilities to create a high-quality easy access space that meet the relevant regulations.

c) Floor improvement project for B1 (NT\$5 million): The B1 floor was originally finished with vinyl tiles. After continuous compressing by the machines used for over ten exhibitions since NSTM was opened, the floor was already several damaged and patched for many times. Therefore, the museum decided to replace the floor tiles with more durable materials, in aim to guard the safety of the visitors and provide better facilities for the museum's exhibitions.

d) Upgrade of the North Complex fire repeater (NT\$11 million): This project continues from the previous works and upgraded 11 repeaters in this year; several other works have also been completed, including upgrade of the repeaters at zone C and P and reworked the circuits of the fire alarm systems for zone A, B, C, and P of the North Complex. This project reworked the circuits of the fire systems that often send out false alarms to upgrade the accuracy of fire alarms and safeguard the safety of the visitors.



b. External Resources

- a) Improvement of energy efficiency for the North Complex (NT\$3.50 million): The Architecture and Building Research Institute (Ministry of the Interior) subsidized the project; on average, the improved system can save 3% of the electricity used by the air-conditioning system.
- b) Improvement of the ventilation auto-control system for the North Complex (NT\$0.9 million): The Architecture and Building Research Institute (Ministry of the Interior) subsidized the project; it is expected to achieve the goal of energy-saving and carbon emission reduction.
- c) Installation of the solar power generation system (NT\$12.25 million): This project is subsidized by the Bureau of Energy and it is expected to generation 9,000 kilowatt-hours by the end of the year after completion of the system in November.
- d) Waterproofing and water leakage improvement project (NT\$4 million): This project is funded by the Ministry of Education and contracted out in November; the project will be completed in December and expected to reduce leakage in the building and improve the quality of the museum environment.

c. Opening of the Green Rooftop: The rooftop green space at zone C of the North Complex was opened to the public in January 2009; this space provides museum visitors a high-quality garden for relaxation.

d. South Complex Lecture Room Project: Taking the needs of venue leasing into consideration, one lecture room with 164 regular seats and 3 easy-access seats was constructed to provide a high-quality space for diversified purposes, as well as increase the revenue of the museum.



◆ LOHAS Energy Conservation House





◆ South Complex Lecture Room Project

e. Energy-Saving and Carbon Emission Reduction Projects

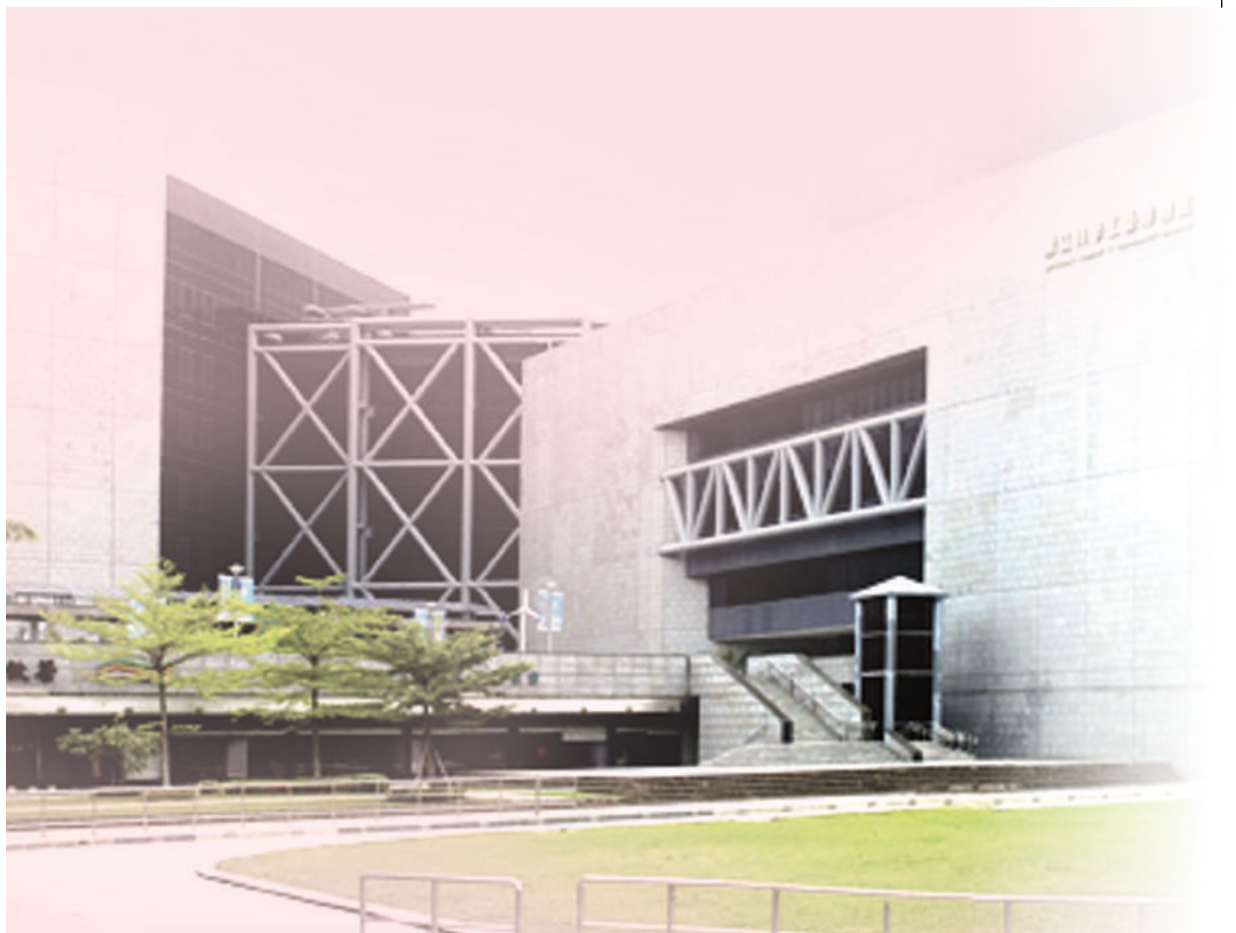
- a) Energy-saving: several facility improvement projects and energy-saving policies were implemented in 2009. Compared to the same period of last year (excluding electricity consumed by the contractors), the NSTM used a total of 15,565,488 kilowatt-hours in 2008 and 14,451,228 kilowatt-hours in this year, which records a saving of 7.16%.
- b) Water conservation: Compared to the same period of last year (excluding electricity consumed by the contractors), the NSTM used a total of 72,119 meter-degrees in 2008 and 68,543 meter-degrees in this year, which records a saving of 4.96%.
- c) Energy-saving honors: According to the Ministry of Economic Affairs memorandum (No. 09800627400) issued on August 5th 2009 regarding “Full-scale Government Agencies and Schools Energy-Saving and Carbon Emission Reduction Measures” , the NSTM was rated as an outstanding institution in 2008 for implementation of the Government Agency and School Energy-Saving and Carbon Emission Reduction Policies.

f. Information Division Projects:

- a) The NSTM set up a total of 18 LCD displays on various floors of the building and developed the instant message broadcasting system to display visitor information.
- b) A large LCD display was set up at the lobby of the museum to provide event contents and broadcast public welfare promotion films.
- c) The NSTM set up a science education teaching resources system, which offers teachers a portal for enquiries of digitalized science teaching resources and allows teachers to download and customize the learning report forms.
- d) The NSTM received a total of 6,253 online applications (science education and leasing of museum venues) and provided online fee-charging services to 275 cases; which brought the museum a revenue of NT\$854,550.
- e) The NSTM specially set up the Impression NSTM area, offering digital image synthesizing services for visitors' photos taken inside of the museum; images are synthesized with museum exhibits of your choice and delivered through email or online download.



Achievements

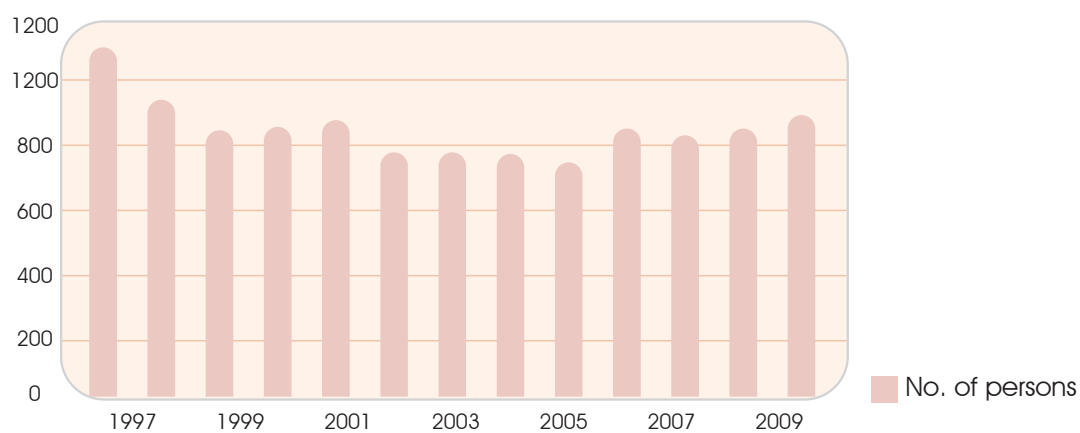


1. Volunteer Participation and Service

(1) A total of 887 Volunteers Participated in the Operations of the NSTM in 2009

No. of Volunteers by Year

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
No. of persons	1136	913	837	846	864	774	772	784	750	856	815	860	887



(2) Distribution of Service Categories of Volunteer Participation:

■ A total of 887 volunteers appointed to 17 categories of services in the following units: 24 in the Exhibition Division, 94 in the Technology Education Division, 665 in the Visitor Services Division, 25 in the Secretariat Office, 79 in the Collections and Research Division.

Unit/Office	Tasks	Job Content	No. of persons
Exhibition Division (24)	Chunghwa Telecom	Inspect exhibits for malfunctions, conduct maintenance work, and implement repair work for malfunctioning exhibits	15
	Exhibit Maintenance and Repair	Inspect exhibits for malfunctions, conduct maintenance work, and implement repair work for malfunctioned exhibits; study and plan maintenance projects, assist the offices to locate maintenance materials, and research/develop exhibits.	9
Collections and Research Division (79)	Archive documents	Assist in filing and management of documents; photocopy and binding of printed information; provide support for seminar activities.	2
	Collection Management	Assist in filing and management of relic documents; data key-in; photocopy and binding of printed information; scan documents.	11
	Collection Research	Assist in filing and management of documents; research and management.	2
	Collection Maintenance	Assist in filing, maintenance, and management of relic documents.	7
	Reader Services	Library book borrowing/returning, photocopy, general enquiry, and order maintenance	57
Technology Education Division (94)	Education Activities	Assist in science education activities and production of teaching materials/aids; assist the Technology Education Division in related activities, i.e. telephone enquiry services and document processing.	94
Visitor Services Division	Visitors Service	Assist in news clipping, press conference, and visitor access.	70
	Exhibition Guide	Provide exhibition guide services for the exhibition halls and special exhibitions.	95
	First Aid	Provide simple first aid and consultation services and assist in visitor services, i.e. checking in coats and other belongings.	15
	Administration	Volunteer sign-in/out and maintenance of the records; compilation and filing of volunteer information; other volunteer related administration works.	25
	Information Desk	Assist in visitor services at the information desk	8
	Children's Science Center	Visitor services at the Children's Science Center and emergency contact	71
	Exhibition Space Maintenance	Inspect exhibitions in every hall; give warnings to the visitors when improper operation or vandalism is discovered; make contact for emergency repair and maintenance.	270
	Theater	Provide guide service at the IMAX® 3D Theater and Multimedia World; assist in maintaining order; make emergency contacts; and assist in evacuation during emergency situation.	111
Secretariat Office (25)	General Administration	Handle mail, photocopy, general documents, and binding/packing of printed information	19
	Landscape	Trimming and maintenance of plants in the gardens and museum buildings	6
Total			887

2. Research and Activities

(1) Research

Statistics of Research Projects

January to December 2009												Unit: per project
Item/Year	Journal articles	Conference papers	Research projects			Publications						
			Led by NSTM staffs	Participated by NSTM staffs	Academic presentations	Books	Audio- Visual productions	Newsletter	Leaflets	Journals	Academic conferences	Academic seminars
2005	30	21	21	19	27	10	3	8	21	5	3	8
2006	31	10	12	9	57	8	1	6	25	4	6	5
2007	33	22	17	12	29	12	1	7	9	3	4	15
2008	31	12	19	17	8	5	1	2	17	0	4	0
2009	23	21	16	22	24	5	0	13	6	1	5	0
Director-general's Office	1	1	0	1	2	0	0	0	0	0	0	0
Exhibition Division	6	1	1	0	4	3	0	13	6	1	2	0
Visitor Services Division	4	3	4	7	8	0	0	0	0	0	0	0
Technology Education Division	8	12	7	7	7	0	0	0	0	0	2	0
Collections and Research Division	4	4	4	7	3	2	0	0	0	0	1	0

※ Compiled on January 19th 2010

(2) Museum Activities

Numbers of visitation

Year	Permanent Exhibition Hall and Temporary Exhibitions	Fee-charging Temporary/ Special Exhibitions	IMAX® 3D Theater	Multimedia World	Total
2009	533,509	99,339	147,606	0	780,454
2008	509,548	70,486	156,462	0	736,496
2007	498,892	14,391	190,502	6,334	710,119
2006	660,711	200,050	214,713	9,205	1,084,679
2005	669,391	171,928	245,853	10,553	1,097,725
2004	720,935	142,223	204,811	6,120	1,067,969
2003	469,200	0	160,457	327	629,984
2002	489,756	134,278	208,288	1,402	833,724
2001	460,152	1,925	168,313	16,610	647,000
2000	659,409	156,480	241,108	8,653	1,065,650
1999	657,833	0	255,188	0	913,021

※ Multimedia World is a venue for science education and renamed as Wa Sci Theater since April 20th 2008.

Visitation in the Museum Complex

Year	Experiential units	Science education activities					Exhibition guide activities		Venue leasing	Outdoor activities
		Lectures	Seminars	Training Seminars	Onsite activities (incl. Wa Sci Theater)	Others	Guided services Tours	Robot shows		
2009	92,805	3,595	412	15,787	151,432	10,643	131,003	29,510	225,491	119,021
2008	102,347	199,368					113,000	38,635	224,394	206,321
2007	107,676	139,597					126,603	49,227	202,269	278,492
2006	131,776	204,269					139,953	57,838	167,438	249,543
2005	0	272,376					136,953	58,122	121,937	296,811
2004	0	226,571					138,679	63,639	103,850	78,967
2003	0	0					95,254	32,551	74,677	236,919
2002	0	0					80,254	38,946	131,093	71,420
2001	0	0					88,325	26,588	107,653	89,363
2000	0	0					153,469	23,646	107,908	46,433
1999	0	0					107,296	23,603	114,135	15,814

※Multimedia World is a venue for science education and renamed as Wa Sci Theater since April 20th 2008.

※Experiential units: Earthquake Chamber, Moon Walker Simulator, Fighter Jet Simulator, Flying House, Electrical Mini-train, Segway, In the Blood Vessels, Award Ceremony Simulation, 4D Theater with Theme Style (no. of visitors serviced).

※Training Seminar: long/short seminar activities targeted for specific subject areas.

※Onsite activities: open activities, i.e. DIY, demonstration, experience activities, designed to complement the museum's exhibitions or temporary/special exhibitions.

(3) External Activities

External Activities by Year

Item/Year		Speeches	Science education activities	Exhibition Tours	Guides and demonstrations
2009	Sessions	24	136	14	0
	Persons-times	1622	37262	54918	0
2008	Sessions	8	81	15	8
	Persons-times	525	38773	311468	192500
2007	Sessions	27	47	11	4
	Persons-times	5,055	72,357	198,910	258
2006	Sessions	57	146	7	1
	Persons-times	2,125	74,809	195,116	62
2005	Sessions	62	28	4	11
	Persons-times	2,755	23,023	184,000	14,920
2004	Sessions	57	13	4	3
	Persons-times	4,572	7,853	87,400	870
2003	Sessions	41	6	3	19
	Persons-times	18,970	16,578	196,040	16,578
2002	Sessions	44	7	2	29
	Persons-times	21,035	14,144	360	11,140
2001	Sessions	9	9	1	3
	Persons-times	4,158	16,291	15,000	360
2000	Sessions	3	0	0	0
	Persons-times	1,386	0	0	0
1999	Sessions	16	0	0	10
	Persons-times	7,390	0	0	16,000

3. Major Projects and Activities

(1) Streamline Personnel System and Improve Administrative Efficiency

The NSTM actively studies and amends the museum's regulations and consolidates the committees for staffs, contract employees, and technical/maintenance workers into the Accreditation and Evaluation Committee. Since affairs relating to recruitment, promotion, re-posting, contract renewal, contract termination, tenure/pay raise, and academic research of specialist employees are highly technical, relevant matters will still be handled by the Specialist Review Board. This reorganization effectively maintains the creditability of specialist evaluation, saves substantial manpower (number of members reduced from 33 to 11), resources (photocopies of information), and time (ballot opening, reciting, and member discussion), and improves the personnel system, as well as administrative efficiency.



◆ World Game Kaohsiung Benchmark Learning activities were held on March 30th 2009.

(2) Conduct Education and Training Programs to Create Quality Organizational Culture

The NSTM offers a series of Employee Education and Training Programs based on the needs of the operations, in aim to active promote legal education and reinforce the concept of employee ethics. Programs implemented in 2009 include "Public Service Employee Administrative Neutrality Law and Limitations to Involvement in Commercial Operations", "Clean Government Topics- Morals, Ethics, and Knowledge of the Legal System", Labor Insurance Pension System (including seminars for Labor Insurance Act, Labor Insurance Pension, and National Pension Insurance)", and "Consumer Protection Act Seminars". Several movie viewing sessions for the movie, *No Puedo Vivir Sin Ti*, were also held, which aims to encourage employees of NSTM to continuously strive for better quality and put more compassion into the administrative works.

To further upgrade knowledge in arts and culture for the NSTM employees, the museum invited Director of Exhibition Services of National Palace Museum, Mr. Lin Quo-Ping to give a speech on the subject of "The New National Palace Museum-A Fusion of Culture and Technology", Chairman of Graduate Institute of Music and Performing Arts of National Chiayi University and Mr. Liu Jung-Yi on the subject of "The Beauty of Musical Instruments". Director of the NSTM also led the staff to conduct benchmark learning at the National Cheng Kung University Museum, World Games Kaohsiung Main Stadium, and Qiaotou Sugar Plant Museum. The diversified professional programs and benchmark learning aim to upgrade the staff's knowledge in culture, arts, and legal affairs and encourage the employees of the NSTM to create a quality organizational culture.

(3) Diversified Recreational Activities Bring Healthy Body and Mind

The NSTM listens to the staff's suggestions to organize a diversified range of recreational activities. The museum also helps the staffs to set up various clubs, such as agriculture, table tennis, biking, Tai Chi Chuan, and yoga clubs, to encourage healthy activities and boost up morale.

In the monthly birthday party, the NSTM's director gives out birthday gifts and invites the birthday staff to lunch; this activity effectively consolidated the teams and creates harmony and solidarity in the organization.

Furthermore, to boost morale and relieve stress, an annual trip is planned for groups of 5 to 15 in 2009 and 53 employees participated in this event.

(4) Administrative Operations Out-contract

In coordination with the Executive Yuan Nine Major Categories Administrative Works Out-Contract Policy, the NSTM proactively reviews its administrative out-contract operations, in aim to save manpower, cut down expenditures, and upgrade administrative efficiency and quality. In this year, a total of 22 administrative works were contracted out to specialist companies, including management of the Multimedia World, car park, and restaurant, leasing affairs of the education service areas, structure and land of the Qiaoyu Fang, souvenir shop, Art Café, Lunch Box and Activities dining area at the fifth floor, and spaces for vending machines, open recruitment for the service bank, collection relocation services, collection digital archiving, and maintenance works for the information-auto-ticketing facilities, information facilities, security, cleaning, gardens, air-conditioning, water and electricity facilities, elevators, fire facilities, and intelligent facilities. The contracted out services save the museum a total of NT\$32,906,200 annually and cut down the need for an extra staff of 97.5 visitations. In addition, regular part-time works (13 persons) funded by the administrative budget are now fully dispatched by agencies from 2009.



◆Activities of the Agriculture Club

(5) Upgrade the Knowledge Management Info Web and Speed Up Experience Sharing

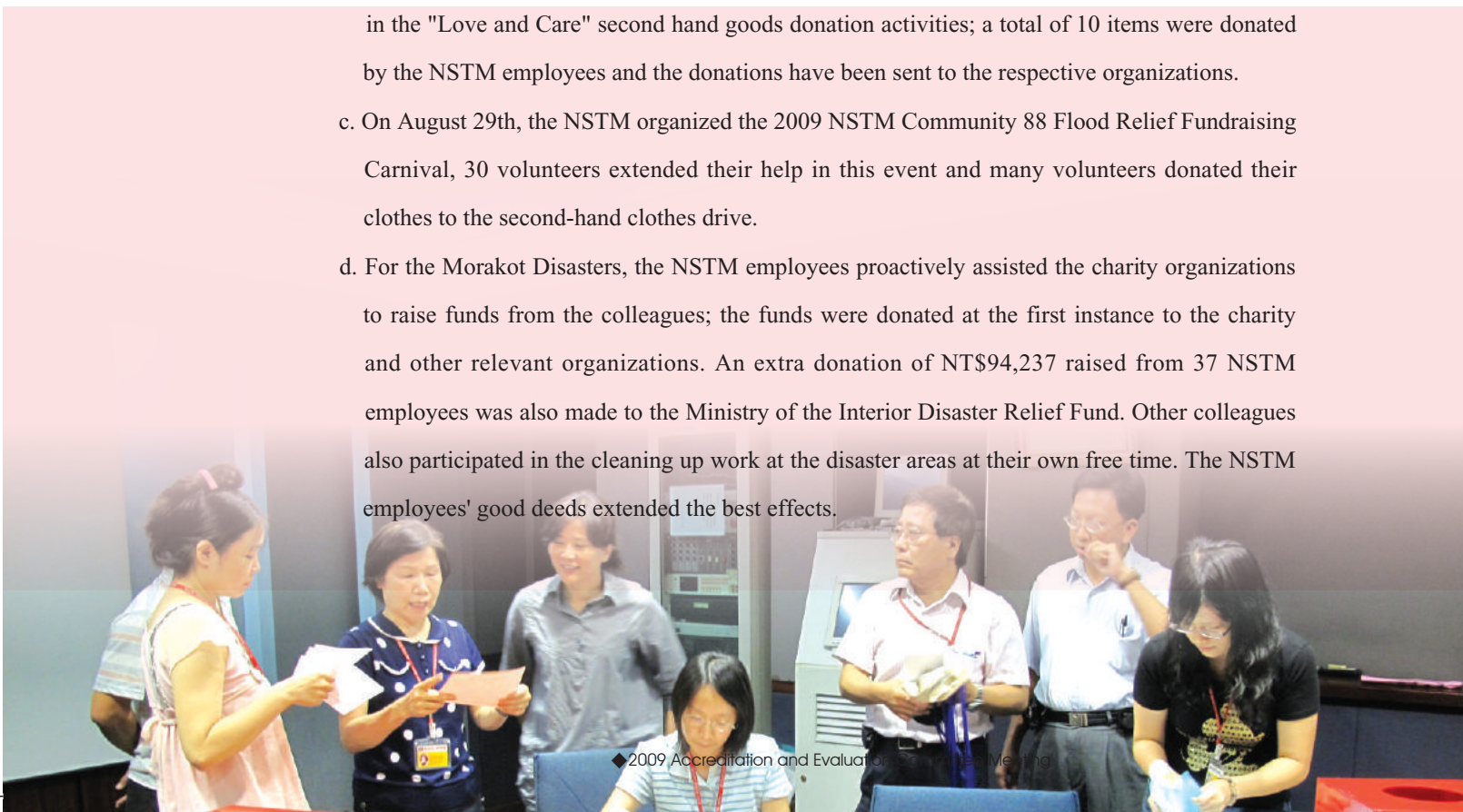
The NSTM actively develops a culture of sharing and innovation of knowledge values by using the museum's EIP employee portal to upgrade the personnel database in the knowledge management info web, which also offers several functions, including calendar, e-bulletin, suggestions, and forums to provide the colleagues a portal of knowledge and information exchange and a space for interactivity and friendship building. The online activities aim to effectively improve work efficiency and quality and upgrade the NSTM's efficiency in human resource management.

The NSTM sets up a service area dedicated to the new employees, so that new employees will be initiated into the operations and codes of conducts immediately (Civil Servant Service Act, Public Service Personnel Ethics Standards).

The NSTM has also been actively developing digitalized courses, as well as conducting Digital Course Production Human Resource Training Programs and Digital Learning Promotion Campaigns. The in-house training programs have also been converted into digital formats and made available through the NSTM's digital learning platforms to extend the effect of learning as part of the active promotion for digital learning.

(6) Active Participation in Humanitarian (Social) Care Activities

- a. The NSTM participated in the 88 Flood Memorial Ceremony held at Kaohsiung Arena on September 7th by the Executive Yuan; a total of 30 persons from NSTM participated in this event voluntarily.
- b. The NSTM responded to the initiative of the Employee Welfare Commission and participated in the "Love and Care" second hand goods donation activities; a total of 10 items were donated by the NSTM employees and the donations have been sent to the respective organizations.
- c. On August 29th, the NSTM organized the 2009 NSTM Community 88 Flood Relief Fundraising Carnival, 30 volunteers extended their help in this event and many volunteers donated their clothes to the second-hand clothes drive.
- d. For the Morakot Disasters, the NSTM employees proactively assisted the charity organizations to raise funds from the colleagues; the funds were donated at the first instance to the charity and other relevant organizations. An extra donation of NT\$94,237 raised from 37 NSTM employees was also made to the Ministry of the Interior Disaster Relief Fund. Other colleagues also participated in the cleaning up work at the disaster areas at their own free time. The NSTM employees' good deeds extended the best effects.



4. Use of Funds

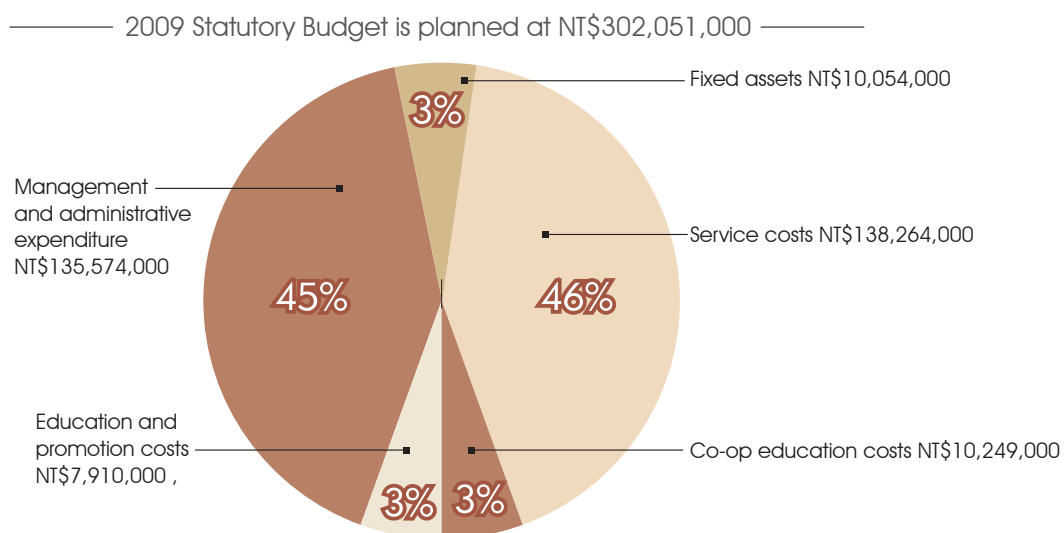
(1) Annual Budget

a. Budget for 2009 Expenditure

Due to the nation's financial difficulties, growth in the budget is rather limited; therefore, to ease the burden of the central government and to boost the potential and willingness to seek other funding from other sources, the Ministry of Education set up the National Social Education Institution Operations Fund in 2007. Since the NSTM has a self-raising fund of 15% and better ability to execute fund operations, it is given priority to be entered into the operations of the National Social Education Institution Operations Fund. The National Science and Technology Museum Operations Fund was set up under the main fund and a total budget of NT\$302,051,000 was planned for the following subcategories: 2009 operational costs and expenditure-NT\$291,997,000, service costs-NT\$138,264,000, co-op education costs-NT\$10,249,000, education and promotion costs NT\$7,910,000, and management/administrative expenditure NT\$135,574,000. An additional budget of NT\$10,054,000 is planned for fixed assets.

Annual Budget for Expenditure					Unit: 'thousand	
Items Year	Service costs	Co-op education costs	Education and promotion costs	Management and administrative expenditure	Total of Overhead	Fixed assets
2007	137,278	7,265	7,335	133,288	285,166	18,798
2008	139,973	9,481	6,797	133,995	290,246	44,824
2009	138,264	10,249	7,910	135,574	291,997	10,054

Data source: annual budget plans and final accounts



b. 2009 Budgets by Category

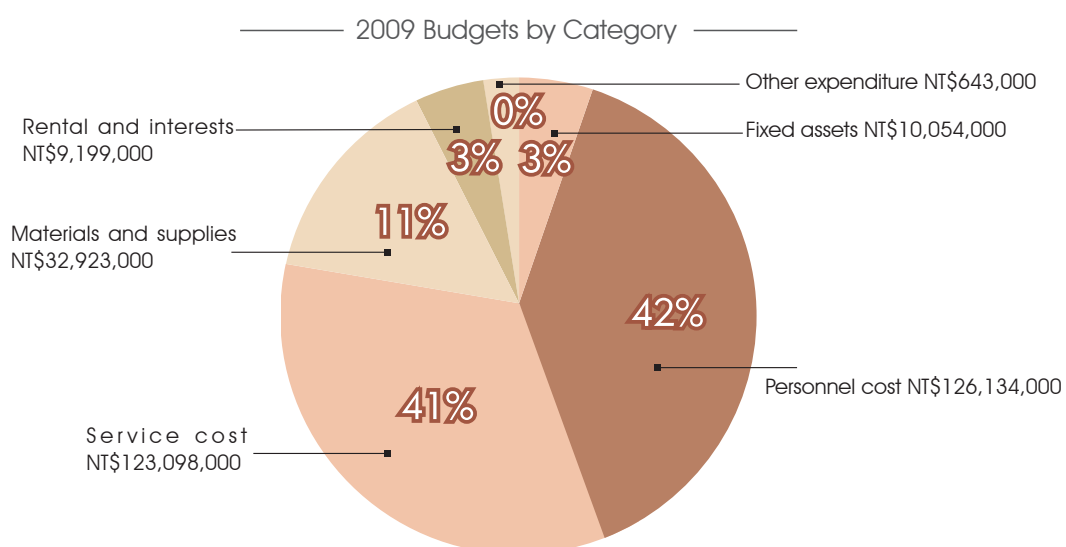
Analyzed by expenditure categories, personnel cost was budgeted at NT\$126,134,000, which took the highest percentage (43.20% plus) in the overhead budget; the second was service cost, which was planned at NT\$123,098,000, sharing 42.16% of the overhead budget. The remaining numbers were for materials and supplies at NT\$32,923,000 (11.27%), rental and interests at NT\$9,199,000 (3.15%), and other expenditure at NT\$643,000 (0.22%).

2009 Budgets by Category

Unit: 'thousand

Items	Personnel cost	Service cost	Materials and supplies	Rental and interests	Other expenditure	Fixed assets	Total
Service costs	77,271	30,789	21,012	9,081	111		138,264
Co-op education costs	1,204	7,198	1,729	118	-	-	10,249
Education and promotion costs	-	4,640	3,270	-	-		7,910
Management and administrative expenditure	47,659	80,471	6,912		532		135,574
Fixed assets	-	-	-	-	-	10,054	10,054
Total of 2009 Budget for Expenditure	126,134	123,098	32,923	9,199	643	10,054	302,051

Data source: annual budget plans

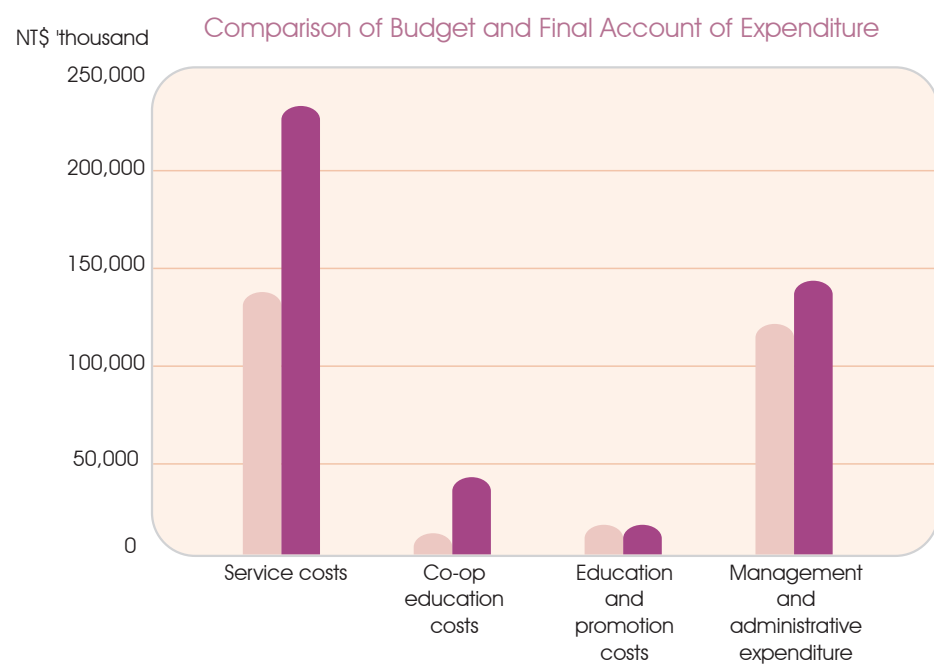
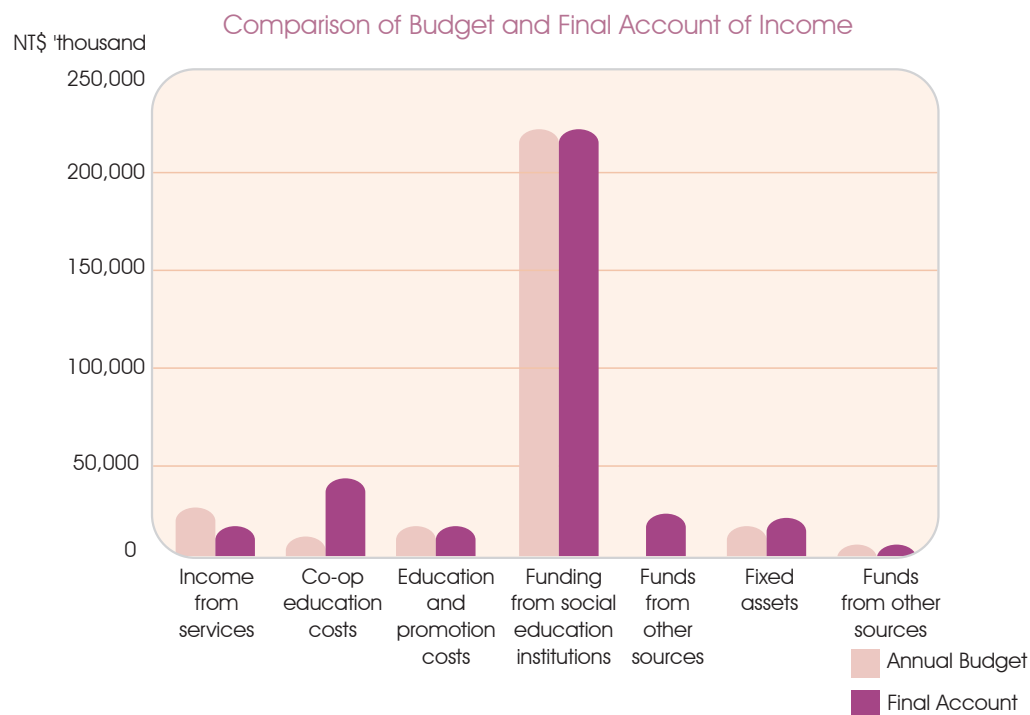


c. 2009 Surplus/Deficit Balance Sheet

After the NSTM entered the system of operations funds, implementation of the 2009 budget was closed with the following results: Total income NT\$340,319,000; the main source of income comes from funding from social education institutions at NT\$222,552,000, which took up 65.39% of the total income. Self-raised income came to NT\$117,767,000, sharing 34.61% of the total income; in which income from co-op education took the largest share of the self-raised income at NT\$ 48,624,000 (14.29% of the total income) and followed by income from services at NT\$24,604,000 (7.23% of the total income). The rest fell in the following order: Income from assets and royalties-NT\$ 20,135,000 (5.92% of the total income) and income from promotion and education- NT\$9,217,000 (2.71% of the total income). The total operational costs and expenditure came to NT\$451,375,000, which registered a percentage of 132.63% compared to the total income; therefore, a deficit of NT\$111,056,000 was recorded. This deficit was mainly caused by the requirement to amortize depreciation. From the aspect of income, the NSTM generated 34.61% of self-raised fund in 2009.

2009 Surplus/Deficit Balance Sheet Unit: 'thousand

Account	Annual Budget		Final Account	
	Amount	%	Amount	%
Operational income	277,016	94.78	318,642	93.63
Income from services	36,305	12.42	24,604	7.23
Exhibition halls	19,075	6.53	14,687	4.32
Theaters	17,230	5.89	9,917	2.91
Income from co-op education	10,249	3.51	48,624	14.29
Income from education and promotion	7,910	2.71	9,217	2.71
Funding from social education institutions (A)	222,552	76.14	222,552	65.39
Funds from other sources			13,645	4.01
Non-operational income	15,264	5.22	21,677	6.37
Income from interests	500	0.17	954	0.28
Income from use of assets and royalties	14,534	4.97	20,135	5.92
Income from fines (including indemnities)	50	0.02	72	0.02
Other income	180	0.06	516	0.15
Total of income (B)	292,280	100.00	340,319	100.00
Operational costs and expenditure	291,997	99.90	451,375	132.63
Service costs	138,264	47.30	245,111	72.02
Co-op education costs	10,249	3.51	46,888	13.78
Education and promotion costs	7,910	2.71	6,658	1.96
Management and administrative expenditure	135,574	46.38	152,718	44.87
Total expenditure	291,997	99.90	451,375	132.63
Surplus (deficit-)	283	0.10	-111,056	-32.63
Ratio of regular government grants (A)/(B)	Income	76.14		65.39
Ratio of regular self-raised funds 1-(A)/(B)	Income	23.86		34.61
Self-raised income	69,728	23.86	117,767	34.61



d. 2009 Capital Account Budget and Final Accounts

The result of 2009 implementation of capital account budget came to NT\$99,920,000, including improvement and expansion of fixed assets at NT\$73,360,000, intangible assets (computer software) at NT\$1,597,000, and deferred charges at NT\$24,963,000 (repair of custodian assets).

The above assets were fully subsidized by government funding; no self-raised funds were used.

2009 Capital Account Budget and Final Accounts

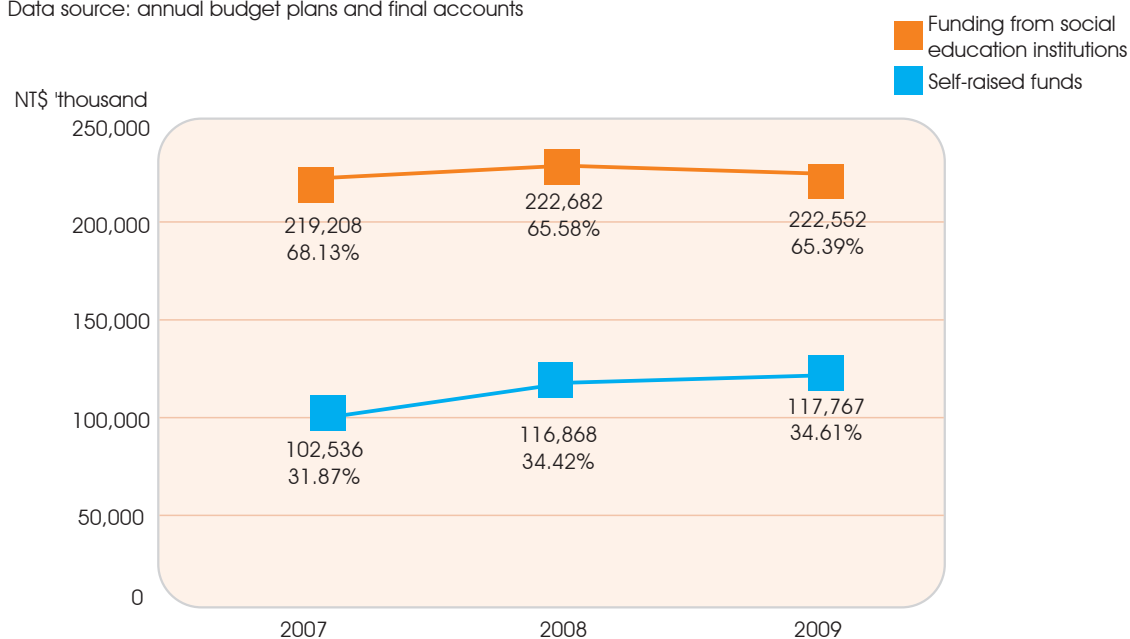
Unit: 'thousand

Items	Available budget	Final account
Improvement and expansion of fixed assets	31,189	73,360
Government subsidies	31,189	73,360
Intangible assets	-	1,597
Government subsidies	-	1,597
Deferred charges	-	24,963
Government subsidies	-	24,963
Total	31,189	99,920

(2) Budget Plans and Final Accounts after Implementation of the Operations Fund System by Year

Unit: NT\$ 'thousand										
Items Year	Budget					Final Accounts				
	Total	Funding from social education institutions	%	Self-raised funds	%	Total	Funding from social education institutions	%	Self-raised funds	%
96	285,366	219,208	76.82	66,158	23.18	321,744	219,208	68.13	102,536	31.87
97	290,529	222,682	76.65	67,847	23.35	339,550	222,682	65.58	116,868	34.42
98	292,280	222,552	76.14	69,728	23.86	340,319	222,552	65.39	117,767	34.61

Data source: annual budget plans and final accounts

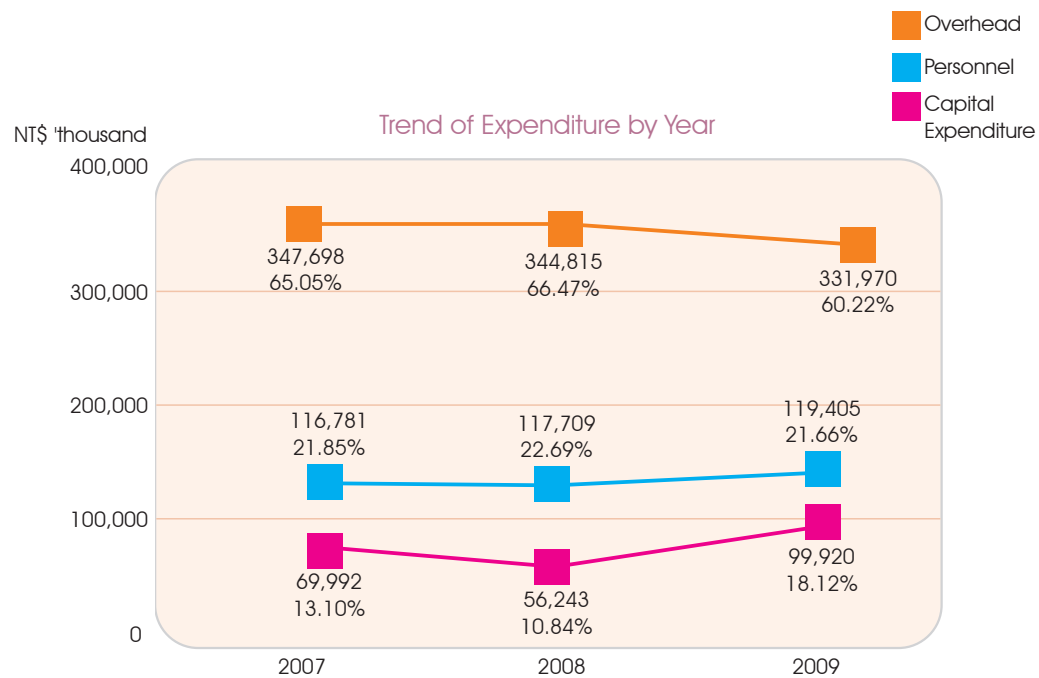


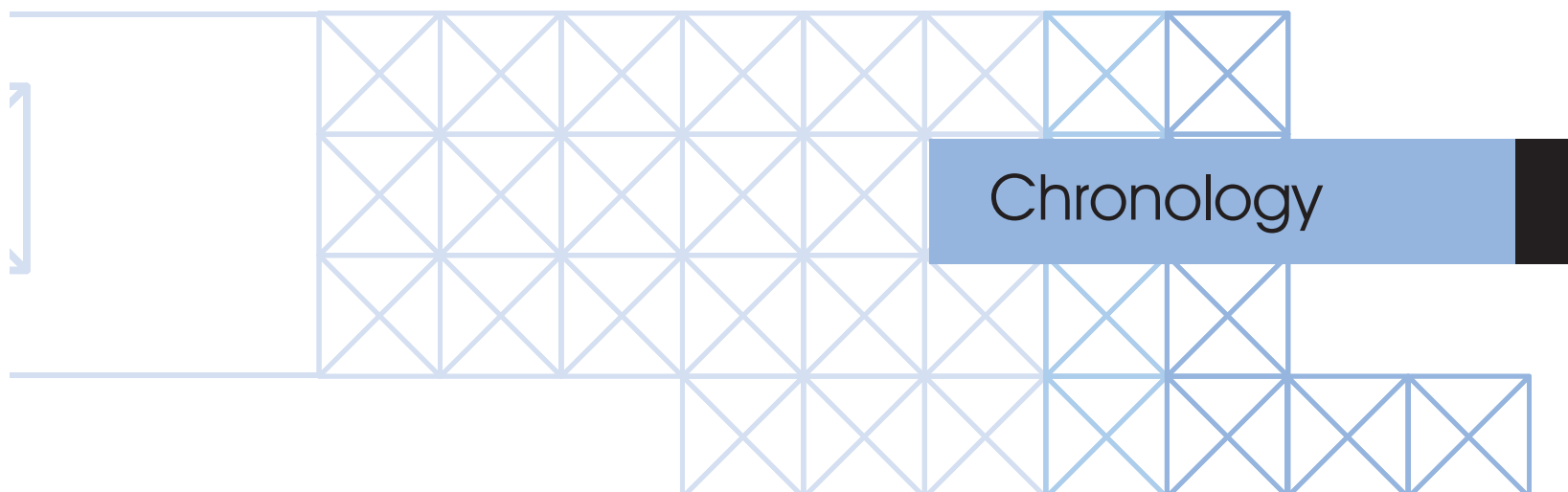


(3) Budget Plans and Final Accounts after Implementation of the Operations Fund System by Year

Unit: NT\$ 'thousand											
Year	Budget					Final Accounts					
	Total	Overhead	%	Capital Expenditure	%	Total	Overhead		%	Capital Expenditure	%
							Personnel	Overhead			
2007	303,964	285,166	93.82	18,798	6.18	534,471	116,781	347,698	86.90	69,992	13.10
2008	335,070	290,246	86.62	44,824	13.38	518,767	117,709	344,815	89.16	56,243	10.84
2009	302,051	291,997	96.67	10,054	3.33	551,295	119,405	331,970	81.88	99,920	18.12

Data source: annual budget plans and final accounts





No.	Date	Items	Event Summary
1	Jan. 1s	Activities	2008 Exhibition guide volunteers held a year-end conference.
2	Jan 4	Activities	NSTM co-organized the Motorcycle Exhibition Lucky Draw activity with SYM Industry Co., Ltd.
3	Jan. 8 to Mar. 1	Exhibitions	NSTM co-organized the Riding the Currents of History --Four Millenniums of Civilization and Technology exhibition with the Institute of History and Philology (Academia Sinica); the exhibition was held in the fourth floor corridor.
4	Jan. 12	Others	2009 International Year of Astronomy in Taiwan Launching Ceremony and opening ceremony for the Peeking the Universe Exhibition was held in the Taipei Astronomical Museum; NSTM's G. Prin Paris Meridian Instrument and related documents were on loan for this exhibition
5	Jan. 19	Signing	NSTM joined National Cheng Kung University in a strategic alliance.
6	Jan. 20	Activities	2008 NSTM staff year-end conference
7	Jan. 20 to Feb. 15	Exhibitions	Opening ceremony for the New Faces- Innovative Digital Art exhibition was held at Temporary Exhibition Hall II.
8	Jan. 21 to Mar. 15	Exhibitions	NSTM co-hosted the 2009 Science Fair- Symbol of Fortune- Exhibition of The Bats with the Taipei Zoo; the exhibition was held in the fourth floor exhibition hall.
9	Feb. 7	Activities	NSTM co-organized the film premier for Darwin's Lost Voyage with the National Geographic Channel in celebration of Darwin's 200th birthday.
10	Feb. 7 to 8	Activities	NSTM co-hosted the First Lego® League Taiwan Qualification Tournament with E-Sun Robot Association.
11	Feb. 8	Activities	NSTM hosted the "A Date with the Artists" for the Contemporary Sword and Saber Arts in Taiwan exhibition in the second floor Art Café; sword and saber artists were invited to carry out a dialogue with the audience.
12	Feb. 19	Activities	National Science Council (Executive Yuan) funded the Indigenous Tribes Science Experiment Station Program, which was kicked off at Xinmei Elementary School, Chiayi County
13	Feb. 21 to May 31	Exhibitions	NSTM co-organized the Inspirations of Master- Ju Ming's Living World Series- Scientists with Juming Museum; this exhibition was held in the outdoor spaces of the museum.
14	Feb. 27	Others	The Education and Culture Committee of the Control Yuan visited the NSTM in the first central government agencies audit tour of 2009.
15	Feb. 27	Activities	Opening ceremony for the LOHAS Energy Conservation House
16	Mar. 1	Exhibitions	NSTM teamed up with the Uni-President Corporation to host the Magical Three Minutes- Special Exhibition of Instant Noodles, which was held at B1 The Star in the Universe Plaza
17	Mar. 4	Activities	NSTM co-organized the 2009 NDYS International Natural Hazard Youth Summit and Conference with the Taiwan Education Network Association.
18	Mar. 7 to 15	Activities	NSTM hosted 12 movie-viewing sessions at the IMAX® 3D Theater
19	Mar. 10	Conferences	NSTM co-hosted the "Forums for the Retired Employees of Kaohsiung Sulfur, Nanlu, and Hualien Fertilizer Corporations" with Tapei City National Taiwan University Alumni Association.
20	Mar. 11	Others	NSTM actively promote women's participation in decision-making in 2008 and the efforts are recognized by the Executive through the Jinxing Award (7th).

No.	Date	Items	Event Summary
21	Mar. 15	Activities	NSTM co-hosted the 2009 Friendly Community Festival with Taiwan Soka Association.
22	Mar. 16	Activities	NSTM hosted the 2009 Volunteer Conference
23	Mar. 19 to 21	Exhibitions	Kaohsiung City Instruments Commercial Association hosted the 2009 (6th) Kaohsiung International Instruments Show, which was held in the Temporary Exhibition Hall II and III, the central court, and B1 east-side corridor.
24	Mar. 25	Activities	NSTM hosted the Technology Education Programs for Schools in Rural Areas of the Southern Taiwan Region (funded by Jinhong Children's Foundation) at Qingye Elementary School, Pingtung County
25	Mar. 31	Exhibitions	Opening ceremony for the permanent exhibition- Children's Science Center-Magic Land
26	Apr. 2	Others	Won the Ministry of Education 2008 Quality Government Service Medal
27	April 4	Activities	NSTM Robot Boy's 12th Birthday
28	Apr. 11	Activities	NSTM co-hosted the qualification competition of the 2009 Nationwide Secondary School Student Mechanics Competition with the Society of Theoretical and Applied Mechanics.
29	Apr. 12	Activities	◆Community residents visited NSTM
30	Apr. 18	Activities	Reading Cultural Relics series activities
31	Apr. 18	Activities	Creative Yi-Jing series activities and opening ceremony
32	Apr. 24 to Jun. 26	Exhibitions	NSTM co-hosted the Workers of Southern Taiwan exhibition with counties/cities of Kaohsiung and Pingtung area.
33	Apr. 25 to May 3	Activities	National Education Radio Kaohsiung Office made live broadcast onsite of the Kaohsiung City (49th) Primary and Secondary School Science Fair.
34	Apr. 28	Exhibitions	NSTM hosted the opening ceremony for the Darwin Now 2009 exhibition at the fourth floor central corridor; British Council Asia-Pacific Director of Projects, Mr. Christopher Wade and Council Director, Ms Christine Skinner, gave speeches at the opening ceremony.
35	May 1	Others	NSTM established the National Museum of Science and Technology Storage Tour Program, which was open for application to the staffs of the museum and the tours were guided by specialist personnel.
36	May 4	Activities	Opening Ceremony and press conference for the Qingye Elementary School (Pingtung County) Creative Science Laboratory
37	May 17	Activities	NSTM co-hosted the finals of the 2009 Nationwide Secondary School Student Mechanics Competition with the Society of Theoretical and Applied Mechanics.
38	May 23 to Oct. 18	Exhibitions	NSTM teams up with the Taipei Zoo to host the Panda Longstay exhibition; the opening ceremony was held at B1 The Star in the Universe Plaza
39	May 24 to Jul. 20	Exhibitions	NSTM teamed with the Siraya National Scenic Area Administration (Tourism Bureau, MOTC) to host the Modern 41 Sports Science exhibition at the Meiling Visitor Information Center, Tainan County.
40	May 26 to Sep. 30	Exhibitions	Formosa 2- Exhibition of Sky Images Sent by Satellite Formosa-2 opening ceremony and press conference
41	May 26 to 30	Conferences	NSTM hosted the ASPAC Conference; directors of science centers (museums) and experts from 13 countries participated in this event.

No.	Date	Items	Event Summary
42	May 27	Others	NSTM organized the 2008 general science education Playing Science Series General Science Education Programs, funded by the National Science Council (Executive Yuan).
43	May 28	Exhibitions	Opening ceremony and press conference for the 20th Anniversary of IDF Fighter Jets Full-scale Wooden Model Exhibition, co-hosted by the NSTM and the Aerospace Industrial Development Corporation.
44	Jun. 16	Others	NSTM completed set up of the 2009 Water Conservation Education Program-Water Resource Classroom.
45	Jun. 19 to Jun. 27	Exhibitions	The Institute of Occupational Safety and Health (Council of Labor Affairs) commissioned NSTM to organize the Occupational Safety Exhibition held in the Temporary Exhibition Hall III.
46	Jun. 23	Others	NSTM co-organized the Telecommunication Relics Identification Professional Training Course with Chunghwa Telecom.
47	Jun. 25	Activities	NSTM hosted the Fun Science education demonstration and challenge game activities at Wen-De Elementary School, Fengshan City, and Kaohsiung County.
48	Jun. 26 to Sep. 27	Exhibitions	Opening ceremony for the Marine Kaohsiung Exhibition, which was co-organized by NSTM and Kaohsiung City Marine Bureau and held at Temporary Exhibition Hall II and the triangular hall (solar yacht).
49	Jul. 2 to 5	Activities	NSTM co-organized the 2009 Diseases Prevention Summer Camp with Centers for Disease Control (Department of Health, Executive Yuan), which was held at the National Taiwan University Hospital.
50	Jul. 4	Activities	Kaohsiung City Sanmin District Office borrowed the outdoor space of the South Complex to host the 2008 World Games Kaohsiung Parade.
51	Jul. 6 to Sep. 20	Others	NSTM provided information of the museum's exhibitions for the 2009 Kaohsiung City Grade 1 to 9 Online Holiday-Summer Homework Race activities.
52	Jul. 10 to 11	Others	20th Ministry of Education Office Leaders' Conference was held in NSTM.
53	Jul. 14	Others	NSTM participated in the 2009 Museum Management Personnel Training Program-Creative Project Competition and won the first place with the project entitled Big Discoveries in Small Screws.
54	Jul. 15 to 30	Others	NSTM participated in the public administration overseas learning program, International Conference Thesis Presentation and Science Volunteer Management System Survey Program; Researcher, Ms Yu Rui-Zhen, presented her thesis in the conference and surveyed the national science category museum volunteer system in Japan.
55	Jul. 17 to 19	Activities	NSTM teamed up with the Taiwan Forestry Research Institute (Council of Agriculture, Executive Yuan) to host the Darwin Now 2009 exhibition Darwin Camp for the Children.
56	Jul. 18	Exhibitions	NSTM jointly organized the Game On- Design and Cultures Exhibition from Barbican Centre of London with Taipei Castle Arts Co., Ltd.
57	Jul. 22	Others	NSTM consolidated the committees for staffs, contract employees, and technical/maintenance workers into the Accreditation and Evaluation Committee and conducted reelection for members of the 2009 Accreditation and Evaluation Committee and Specialist Review Board.
58	Jul. 24	Activities	Opening ceremony and press conference for the Space Expedition- The 40th Anniversary of Apollo exhibition, which was co-hosted by NSTM and American Institute in Taiwan (AIT).

No.	Date	Items	Event Summary
59	Jul. 25 to Aug. 16	Activities	NSTM hosted the National Science Council (Executive Yuan) project-Nationwide High School Creative High Temperature Superconductivity Competition, and completed the initial superconductivity and creative design education program for the first round competition.
60	Jul. 29	Others	In the First National Publishing Award-Outstanding Government Publications competition, NSTM's exhibition publications for "The Magical Three Minutes- Special Exhibition of Instant Noodles" and "History of Telecommunication in Taiwan" won the judge's selection title and "Half a Century of Motorcycles" won the selection of honor title.
61	Aug. 1	Others	Ronald McDonald House Charities and Childhood Cancer Foundation invited 100 children to the disease prevention show
62	Aug. 1	Others	Game On- Design and Cultures Exhibition One-day Curator activity invited former Premier, Mr. Frank Hsieh, to visit the events.
63	Aug. 4	Others	Publications for the "Weights and Measures-Standardizing Modern Society" exhibition, "The Magical Three Minutes- Special Exhibition of Instant Noodles", "Half a Century of Motorcycles" exhibitions were selected for the Taiwan Hall exhibition in the 2009 Frankfurt Book Expo in Germany.
64	Aug. 11 to Oct. 11	Exhibitions	The Mobile Forest- Promotion of Physical Health organized by the Bureau of Health Promotion (Department of Health, Executive Yuan) was held at the sixth floor corridor.
65	Aug. 14	Others	The National Science Council (Executive Yuan) organized the 2009 Technology Taiwan Exploration Internship Program; five overseas Chinese "Migratory Bird" intern students were assigned to NSTM. These intern students presented their reports at the National Science Council internship program conference and won the first place among the 27 teams in the Humanities Category.
66	Aug. 15	Activities	NSTM co-hosted the first-round Southern Taiwan region World Robot Olympiad 2009 Taiwan Qualification Tournament.
67	Aug. 19 to 24	Others	NSTM sent staffs to participate the 2009 Korean Association of Science Education (KASE) Conference at Cho-Sun National University.
68	Aug. 22 to 23	Activities	NSTM teamed up with the National Museum of Natural Science Foundation to host the "Searching for Future Scientists-Science Writing Camp".
69	Aug. 22 to 23	Activities	NSTM hosted the Creative Energy-Saving Competition (project of the National Science Council) education activities for energy technology; the final competition, award ceremony, and press conference was held in the museum's lobby.
70	Aug. 22 to 30	Activities	NSTM hosted 8 community movie-viewing sessions at the IMAX® 3D Theater.
71	Aug. 28	Activities	Opening press conference for the Prototypes of Taiwan's TV Industry exhibition.
72	Aug. 29	Activities	NSTM organized the Community 88 Flood Relief Fundraising Carnival.
73	Aug. 30	Activities	Treasure Hunt at NSTM summer marketing activity
74	Sep. 5	Activities	Opening ceremony and press conference for The Prototypes of Taiwan's TV Industry exhibition
75	Sep. 23	Activities	NSTM co-organized the 2009 Penghu County Water Conservation Program education activities with Water Resources Agency (MOEA).

No.	Date	Items	Event Summary
76	Sep. 25	Activities	NSTM co-organized the Rainwater Collection/Storage and Living Waste Water Recycle Seminar with Water Resources Agency (MOEA).
77	Sep. 25 to 27	Activities	NSTM co-hosted the Museum and School Technology Education Seminar and Workshop with the Graduate Institute of Museology of Tainan National University of the Arts.
78	Sep. 26	Activities	National Science Council (Executive Yuan) funded the Southern Taiwan Indigenous Youth Science Technology Innovation Program.
79	Oct. 10	Activities	NSTM teamed up with Taiwan Creativity Development Association and National Taiwan Normal University to organized the Power Tech 2009-Nationwide Youth Technology Innovation Competition; the first-round qualification competition was held in the museum.
80	Oct. 24	Activities	Kaohsiung City Sanmin District Office hosted the city government event, 2009 Zuoying Wannian Folklore Festival Dance Party, which was held at the museum's Zhuifeng Plaza.
81	Oct. 24 to 30	Activities	The Ministry of Education hosted the 2009 (2nd) National Grandparent/Grandchildren Week; NSTM launched a series of technology related events.
82	Oct. 30 to 31	Activities	NSTM co-organized the Kaohsiung City 27th Primary and Secondary School Science Carnival; the opening ceremony was held at the triangular hall.
83	Nov. 14	Activities	NSTM co-hosted the Love in NSTM with Chunghwa Telecom; a tour for the underprivileged children and press conference were held. Children of the Ministry of Education's Glowing Angels Light-up a Light Program were invited to visit the museum.
84	Nov. 18	Activities	Opening for the Flairs of Ocean and Young Creativity-The Road Show of Young Artists
85	Nov. 20	Guest Visits	Minister of Education, Mr. Wu Qing-Ji, visited the museum's collection storage.
86	Nov. 28 2009 to Feb. 28 2010	Exhibitions	NSTM co-hosted the Fatal Beauty- Traditional Weapons from Central Africa with National Museum of History and Hong Kong Ethnic Art Co., Ltd.; opening ceremony was held at the B1 Temporary Exhibition Hall II.
87	Nov. 28 to Dec. 6	Activities	NSTM coordinated with the 2009 Information Month activities held at Taipei World Trade Center Exhibition Hall I and organized the Field Battery Wooden Horse activities for the theme hall of the Ministry of Education.
88	Nov. 29	Activities	NSTM hosted the Diseases Prevention Combat Camp World AIDS Day activities.
89	Nov. 29	Activities	IAVE Taiwan Overseas Volunteer Change Activities
90	Dec. 8	Exhibitions	Opening ceremony for the Taiwan Sustainable Campus Road Show; a project co-organized by NSTM and the Ministry of Education.
91	Dec. 14 to 29	Exhibitions	The Special Exhibition of 2009 U19 Taiwan Creativity Competition organized by the Industrial Technology Research Institute (ITRI) was held at the fourth floor corridor.
92	Dec. 17	Others	NSTM completed establishment of the Conference Information Platform.
93	Dec. 17	Exhibitions	NSTM co-hosted the Industrial History of Taiwan Hall Opening Ceremony and Press Conference with the Industrial Development Bureau (MOEA); Chief Secretary of Executive Yuan, Mr. Lin Zhong-Sen, Deputy Minister of Education, Mr. Lin Chong-Ming, and Chairman of the Chimei Group, Mr. Xie Wen-Long were present at the event.

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NATIONAL SCIENCE AND TECHNOLOGY MUSEUM

807高雄市三民區九如一路720號

720, Jiouru 1st Road, Kaohsiung 807, TAIWAN (R.O.C.)

電話:(07) 3800089

傳真:(07) 3846477

網址:<http://www.nstm.gov.tw>

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NATIONAL SCIENCE AND TECHNOLOGY MUSEUM

807 高雄市九如一路720號 tel: (07)380-0089 fax: (07)387-8748
720, Jicuru 1st Road, Kaohsiung 807, TAIWAN (R.O.C.)
<http://www.nstm.gov.tw/>



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