



Thu Dau Mot University
Journal of Science

ISSN 2615 - 9635

journal homepage: ejs.tdmu.edu.vn



Experience in the conservation, and restoration of Relic (Ngo Mon relic – Hue Imperial City)

by *Tran Dinh Hieu* (Thu Dau Mot University)

Article Info: Received Dec. 23rd, 2022, Accepted Jan. 13 th,2023, Available online Mar.15th,2023

Corresponding author: hieutd@tdmu.edu.vn

<https://doi.org/10.37550/tdmu.EJS/2023.01.367>

ABSTRACT

This report presents the process of conserving, restoring scientific works, as well as ensuring the method and principle of conservation. Besides, because there are many reasons, the restoration of the relic is not currently carried out in accordance with the current regulations and there are some mistakes in the conservation and restoration of the relic. Therefore, understanding the restoration process is the core scientific basis for proposing effective conservation projects and solutions.

Moreover, the content of report provides more the materials, and scientific foundations for conservation and restoration of the relic as follows:

- *Understand the valuable aspects of the Ngo Mon relic;*
- *Help conservationists grasp some methods to identify the relic including analysing history, and construction schedule of the work; analysing actual state (architecture, materials, fine arts...); analysing documentary photos; analysing similar works.*
- *Support people who work in management, project planning, construction of the relics grasp the order, process, regime, and policy of the State when implementing a project to conserve and restore more professionalism.*

Keywords: *the architectural heritage of Vietnam, Ngo Mon, relic preservation*

1. The Introduction

1.1 General issues

The overall architecture of Ngo Mon contains a very important role in royal life and in the architectural system in Hue Imperial City. Ngo Mon deserves to be listed as one of

the most typical constructions of the Nguyen Dynasty's fine arts. In addition, Ngo Mon connects the feeling for the beautiful in the history of traditional architecture of the nation. Ngo Mon represents a specific and relatively comprehensive expression of a high level of architectural art which has many uses, implications, subtleness, and creativeness of Vietnamese ancestors.

Ngo Mon is not only a valuable material for conservationists in exploring and learning, but also an extremely worthy work to research and witness in the restoration of heavily damaged works such as component ratio, method of using materials, colours, method of laying the finish illumination, decoration rules, and so on. Ngo Mon, mentioned by the Pham Dang Tri late artist in an article titled "Ngô Môn với những tỷ lệ lý tưởng" (Ngo Mon, la Porte du Midi aux proportions idéales) in 1986, has been recognized by many writers and represented for the harmony of the highly characteristic work.

The complex architectural structure as well as the combination of nine sets of roofs with lots of wooden components in harmonious proportions show that the construction techniques reached the high level of the engineers of that time. The hollow-solid layout (Ta space, and Huu Duc Lau space without wallboard) clearly reveals the slender columns in the floors of Ngo Mon and brings a light flowing and gentle image to the work. The main colours such as red - yellow - green are skillfully utilised in combination and alternating to create harmony in the work itself and between the work and the surrounding nature.

1.2 Data and research methodology

1.2.1 Data

- Dossier of consulting, surveying, and forming the project

Dossier of consulting, surveying, and forming project, proposed by the Monument Conservation Institute of Ministry of Culture, Sports and Tourism in 2019, is valuable in collecting and analysing documents, the current status of the work as well as offering some conservation solutions; however, it has not yet tackled the detailed solutions of the building components of the work.

- Dossier of constructional designing of the relic

The conservation and restoration of the whole of Ngo Mon relic (first phase), proposed by the Central Restoration Of Monuments Joint Stock Company in 2012, is a relatively complete study having high value in analysing documents, actual state and highly practical proposed solutions. Dossier, however, is still heavily theoretical and only focuses on the design when the work still exists but it has not been comprehensively surveyed and evaluated.

- Dossier the completed work of the relic

The conservation and restoration of the whole of Ngo Mon relic (first phase), proposed by the Central Branch of Institute for Building Science and Technology in 2015, is a detailed and factual holistic study. Moreover, this is the premise to serve for further studies.

- Dossier of reporting possible expenses to investment and construction of the project

The conservation and restoration of the whole of Ngo Mon relic (second phase), proposed by the Hue Monuments Conservation Centre in 2015, has high value in collecting, analysing documents, and surveying the actual state.

1.2.2 Research methodology

- Methodology of surveying and collecting data

Surveying actual state of the work; collecting sufficiently information which involves topics such as history, map, photos, field work.

- Methodology of analysing and comparing

Methodology of analysing and comparing is utilised to refer to similar works, apply the actual state, craftsman's method of getting ink, check and monitors to analyse and compare to propose the process of executing, conserving and restoring a relic.

- Methodology of statistics, probability, and tabulation

Methodology of solving information, general thinking, and tabulating according to each specific criterion.

2. Result, discussion

2.1 The location of Ngo Mon

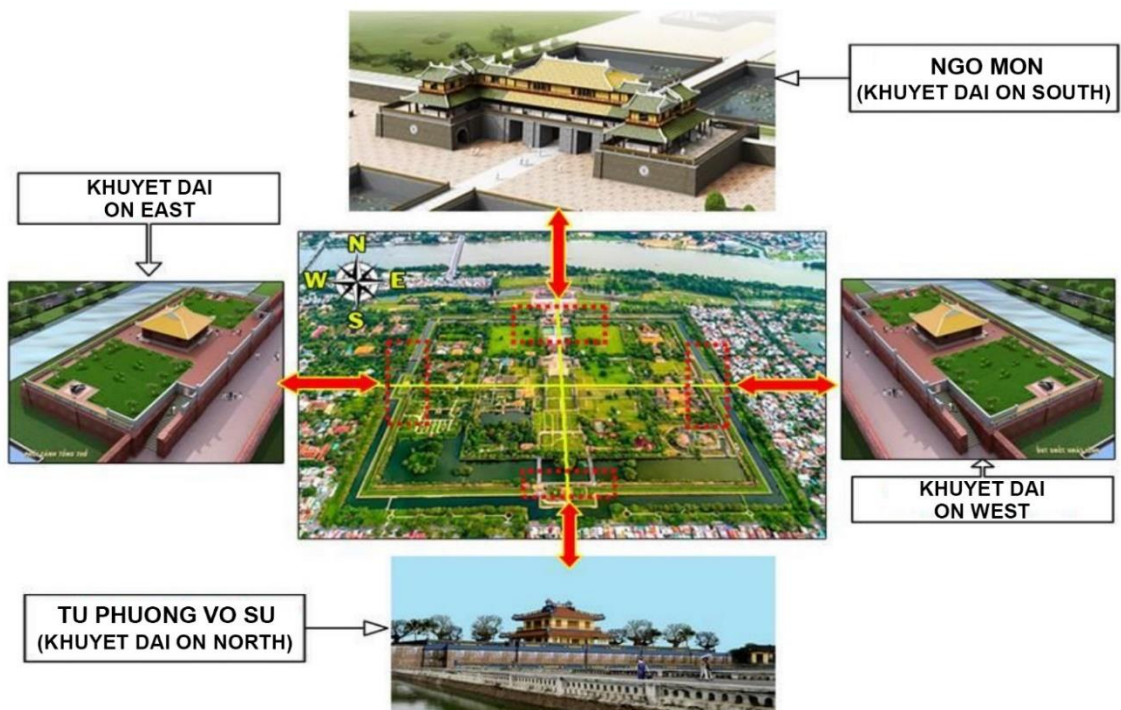


Figure 1. The location of Ngo Mon in Hue Imperial City

(Source: the Central Branch of Institute for Building Science and Technology and the author)

The whole of Ngo Mon architecture has a U-shaped plan divided into two parts including the 1st floor and the upper floor; however, both these parts have been closely and harmoniously designed from the whole to the details forming an inseparable whole (Phan Thuan An, 1989).

- The 1st floor is a high floor, built higher than the common ground about 5m. Besides, the 1st floor consists of five doors which have three middle doors placed parallel to each other including Ngo Mon (centre), Ta Giap Mon (left), and Huu Giap Mon (right). Moreover, the other two doors, made holes on the left and right sides of the U-shaped plan of Ngo Mon, are opposite each other. In addition, they are like tunnels running through from the inside out with folded shapes. Besides, the main part of these two doors is parallel to the three middle doors, but when completely out of the tunnel, they rotate at a 45-degree angle and point directly to the common axis of the palace. These two side doors are called Ta Dich Mon and Huu Dich Mon. The specialty of these two (L)-shaped aisles is each door is additionally arranged with a circular window which is designed with the stylized “longevity” letter on the outer wall of the upper of Ngo Mon.

- The upper of Ngo Mon consists of five main buildings and four minor buildings divided into three rows and lined up at right angles to each other. Besides, the main row, is located in the centre bottom of the U-shaped plan and above the three middle doors. In this central row, the central part is a building consisting of three compartments and two lean-tos, whose height exceeds that of the rest of the buildings; connecting to either side are two minor buildings that are actually corridors that are upgraded to match the centre building. Moreover, two rows on either side of the U-shaped plan of Ngo Mon, each row consists of two main buildings and a minor building which is also an upgraded corridor. All nine of these floors are very cleverly linked together from house frame to roof; however, the middle building is only tiled with yellow tube-tile called Chinese yellow glazed roof tile while the remaining eight buildings are tiled with blue tiles called Chinese green glazed roof tile. Therefore, Ngo Mon has “one yellow building and eight green buildings” (Phan Thuan An, 1983).

2.2. Cultural and artistic values

Ngo Mon, built in the most prosperous period of the Nguyen Dynasty (1833 under the Minh Mang period), indicates a period of development in all aspects from administrative, military, cultural ... The conceptions between importance and triviality are clearly shown through the distribution of designed materials and colors between the major axis called “Dung dao” and the adjacent areas. Besides, The planners of the Nguyen Dynasty were very skillful in arranging the two lakes called Ngoai Kim Thuy and Thai Dich located before and after Ngo Mon through a connecting courtyard. In addition, the ancients not only used the water surface as the yin element to highlight the yang part of the Ngu Phung floor but also created a continuous rhythm linking important works in the administrative apparatus of the dynasty: Huong river (yin) - Stage of Flag (yang) - Ngoai Kim Thuy lake (yin) - Ngo Mon gate (yang) - Thai Dich lake (yin) - Thai Hoa palace (yang). In addition, this is also a place with a

beautiful view of the landscape, because the front is Ky Dai, the distance is the Ngu Binh mountain, and the inside is the whole view of Hue Imperial City (Huynh Minh Duc, 1994).

2.3. *The basic principles of conservation science and restoration of monuments*

- Complying with relevant laws, legal documents of the state of Vietnam, and the World Heritage Convention for the Conservation of Monuments.
- Respecting and accepting the International Charter, and the UNESCO recommendations; research results on history, culture, architecture, and fine arts;
- Preserving and limiting interference with the original elements of the monument; preserving and maximizing the use of original materials.
- According to an accurate base to make renovation and conservation decisions including surveys, archaeological reports, historical documents, comprehensive analysis and evaluation of the monument as a theoretical basis.
- Restoring and conserving through using traditional technical methods combined with modern technology. Moreover, giving priority to measures that repair, strengthen, and minimize the replacement in order to preserve the original components and authenticity as well as ensure the long-term sustainability of the relic;
- Ensuring the compatibility between the landscape and the relic, limiting the negative impacts of the neighbouring environment, and creating convenience for exploiting the value of the relic. Furthermore, maintaining environmental hygiene and the natural landscape; linking the relic with the space of the historical landscape.

2.4. *Legal order for the conservation and restoration of Ngo Mon relic*

1. Proposing for planning relic

Proposing for planning the relic, prescribed in accordance with the Circular No. 15/2019/TT-BVHTTDL dated December 31, 2019, of the Ministry of Culture, Sports and Tourism, details a number of regulations on preservation, restoration, and restoration of the relic. Moreover, it is approved by the Prime Minister.

2. Proposing an investment policy report

The diagram of the process of proposing an investment policy report.

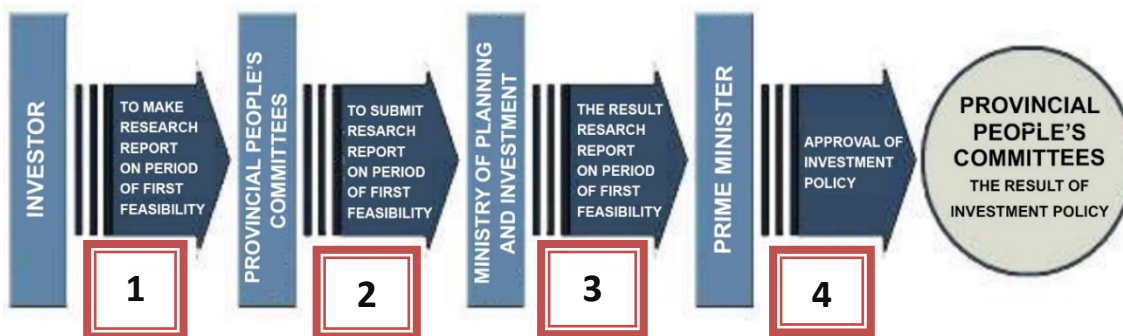


Figure 2. The diagram of the process of proposing an investment policy report (Nguyen Tat To, 2020)

According to regulation: Law on Public Investment of Vietnam No. 39/2019/QH14 dated June, 13th 2019; Decree No. 136/ND-CP dated December 31st 2015 of the Government guiding to implement a number of articles of the Law on Public Investment;

3. Proposing the project (proposing feasible research report)

The diagram of the process and procedure of making a project to preserve and restore the relic.

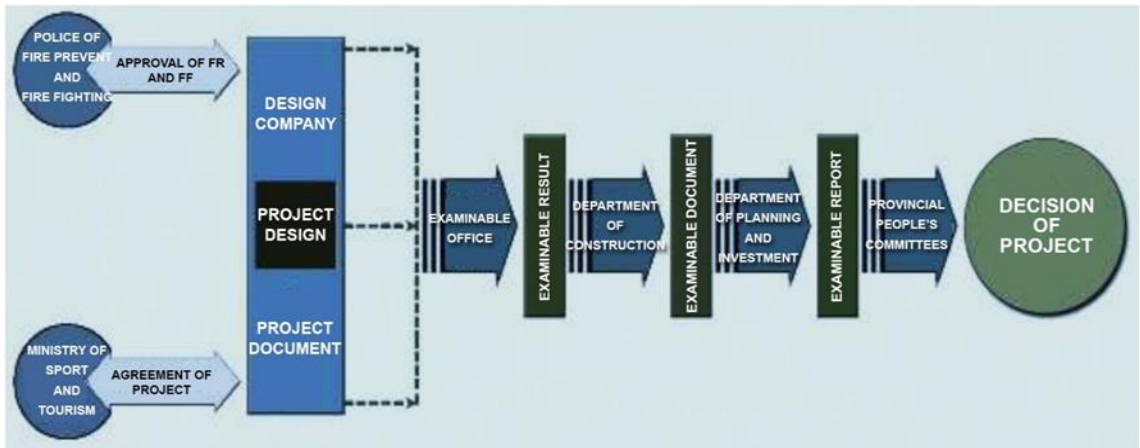


Figure 3. The diagram of the process of proposing the pre-feasibility research report(Nguyen Tat To, 2020).

4. Preparing and approving of contractor selection plan (*having a plan of the capital investment*)

The diagram of the process of making procedures and approving the plan in choosing a contractor.



Figure 4. The diagram of the process of approving the plan in choosing a contractor (Nguyen Tat To, 2020)

5. Implementing bidding packages

- Implementing a bidding package in bomb and mine clearance (if they exist).

If the task of "bomb, mine, and explosive clearance" is carried out, the investor makes a decision to appoint a contractor for the bidding package "bomb, mine, and explosive clearance" of the project.

- Implementing a bidding package in designing construction drawing and estimating for cost.

The diagram of the process in implementing a bidding package in designing construction drawing and estimating for cost.

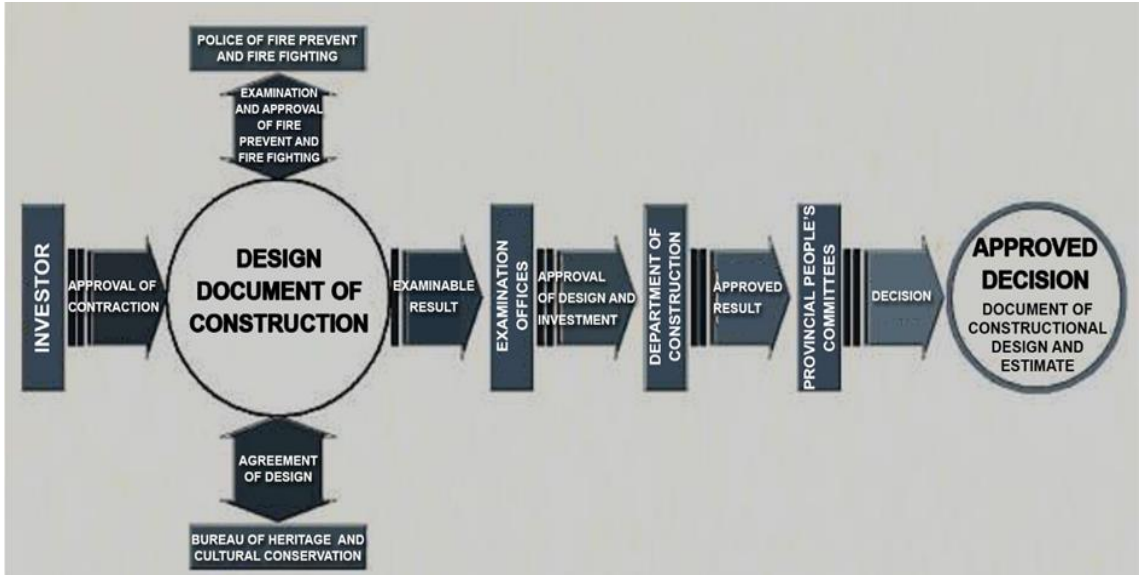


Figure 5. The diagram of the process in designing construction drawing and estimating for cost (Nguyen Tat To, 2020).

2.5. The order of the construction process to conserve and restore the relic

The diagram of implementing the construction process to conserve the relic.

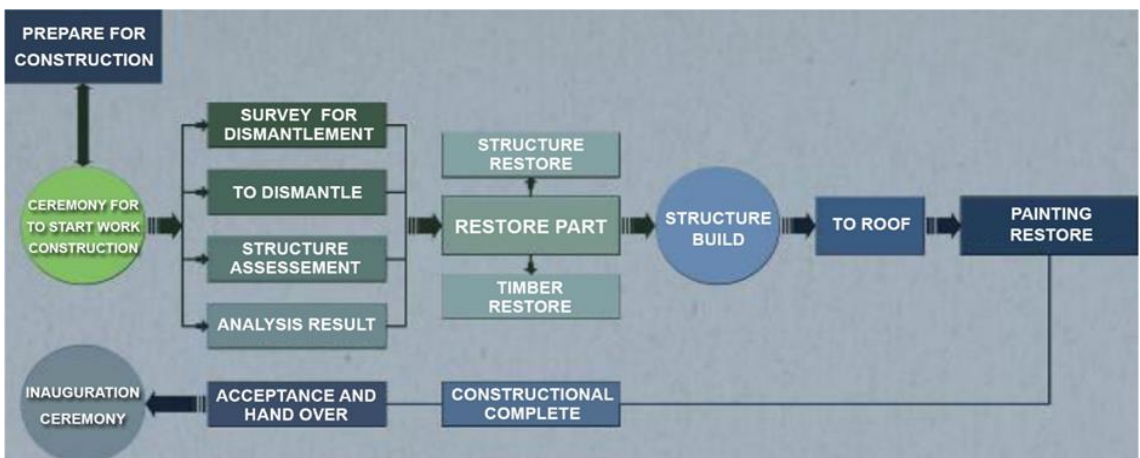


Figure 6. the diagram of the construction process to conserve the relic (Nguyen Tat To, 2020)

1. Preparing, and organising the construction site

After negotiating successfully and signing a contract, the construction contractor must implement the preparation and organisation of the construction site as follows:

- Minutes of handover of premises.

- Table of content for introducing the project.
- The map of an architectural plan in construction organisation and construction progress.
- Site office.
- Stockpile, job shop, a temporary to contain taken down materials, the area of portal gantry, material yard.
- Occupational safety conditions (firefighting, health, etc.)
- Barriers, and safety nets for construction.
- Preparing materials and human resources (officials and technique workers, skillful staff).

2. Groundbreaking ceremony

Groundbreaking ceremony, implemented when preparing for taking down and executing the work, is one of the three most important rituals in building houses according to Vietnamese folk beliefs to inform and seek permission of the Land Genie. This ceremony, however, is not always organized in the right way to avoid serious taboos. Also, the groundbreaking ceremony is maintained as a religious custom of the ancestors; therefore, when organizing this ceremony, it is essential to master factors such as the date and time of the commencement and the age of the owner of the ceremony. In today's modern society, the groundbreaking ceremony not only contains the meaning of folklore, but also shows the growth in the scale up of a unit, organization, or project.

3. Inquiring the activities of taking down the project

- Taking pictures of the actual state of the work before the restoration

Taking pictures of the actual state of the work before the restoration is the first step which records characteristics, structure, material, colour, shape of the current work before taking down the work to use for construction work, and compare with the completed work. The steps for shooting include shooting the overall landscape and architectural details – art, artefacts, worshipping objects. Then it is necessary to make statistics and arrange in the correct and scientific order of each building component.

- Marking building components

A relic restoration work can be assessed as effective when it preserves the maximum original value of elements. The elements consist of shape, size, material, colour, decorative art, and so on from the whole, front elevation, interior to each component or tiniest decorative detail of the work. Moreover, it is extremely vital to correctly rearrange the original position of each restored component, part, and detail of monuments which have to be taken down partially or completely in restoration since this activity is an enormously important element that determines the effectiveness of the restoration work. Moreover, marking building components before taking down the components is extremely vital and essential because it will support in rearranging the taken down component, part, and detail of monuments more exactly.

The marking method is really methodical and scientific, used uniformly for all works and all objects in the process of renovating the monument. In addition, all those involved in the renovation must know, understand and obey this method in order to work together in a systematic and orderly manner during the construction process from beginning to end. For example, the marking method of a component must show name (abbreviation), exact order and location of the component according to the basis of the axes of the positioning drawing. Besides, there is absolutely no duplication between the different components. In addition, marking for all types of components in all different positions have to be instructed and symbols must be simplified to facilitate marking, recording file and so on. Furthermore, the marking must ensure that it does not fade during the process of dismantling and processing until reassembling and observing the components. The marking method must provide a sequence of implementation which starts immediately from the working drawing documents. Importantly, the marking must be clearly and completely shown.

3. Conclusion and recommendation

3.1 Conclusion

1. The project implementation process

The project implementation process summarizes the sequence of legal documents from the beginning to construction implementation. Each step is accompanied with a written procedure which must be consistent with legislative documents. The steps are to follow the process and sequence. Moreover, the purpose of counting the project implementation is to support the management and planning unit to deeply grasp and understand the prescribed procedures to completely carry out the project.

2. Construction process

Construction process provides the sequence of solutions to support those who implement conservation and restoration work to grasp the regulations so as not to make mistakes in each construction step. Also, doing conservation work must extremely understand, identify and evaluate conservation values. Besides, the evaluation must be based on many aspects (artistic value of architecture, historical value, traditional method value of construction, intangible cultural value, landscape value, socio-cultural value, etc.). Construction process is the scientific process which is essential to effectively propose conservation and solutions for projects.

3.2 Recommendation

1. The procedure regulation in implementing the project

- There are some overlapping regulations on the order, procedure of appraising the project and restoring the relic. Because of the influence of regulations of plan on relics, Law on Public Investment, Law on environmental protection, and the Construction Law, the

national special monuments are being tough. The whole projects implemented in the national special monuments are regulated that belong to the project of the A group and submitted to the Prime Minister for approval. Moreover, the regulation also regulated that a project must be approved by a lot of Ministries such as the Ministry of Planning and Investment, the Ministry of Finance, the Office of the Government, the Ministry of Construction, the Ministry of Culture, Sports and Tourism, and the Ministry of Natural Resources and Environment. These procedures obstruct extremely in operating the project of relic restoration.

- It is imperative to distinguish between cumbersome and unreasonable procedures and the rigour of a process. Besides, if the process of project planning is simple, it will easily cause arbitrariness in conservation and restoration work. Therefore, to ensure the preservation process and the appraisal of projects in restoring relics, it is only necessary that the Ministry of Culture, Sports and Tourism has an Agency for Cultural Heritage in appraising and directly manages all projects in restoring relics. Moreover, issues of construction techniques are appraised by the local Department of Construction.

2. Management capacity and human resource development for conservation and restoration

- Building a team of managers and specialists who have high professionalism, ability to coordinate and link with experts in many different fields including natural sciences, and social science and humanities to manage and implement practice activities of planning, designing, preserving and restoring monuments.

- Currently, human resources in conservation work is only trained by the University of Architecture; however, this activity is not yet specialized. In fact, people in conservation work must have multi-source experience in the different fields such as architecture, construction, fine arts, history, informatics, culture and so on. Therefore, it is necessary to create a scientific training course, program, study method, and study time. In addition, it is necessary to train a team of skilled workers who are equipped with and master the provisions of the Law on Cultural Heritage and relevant legislative documents, as well as the provisions of the Convention and the International Charter about World Heritage sites.

References

- Huynh Minh Duc (1994). *Từ Ngõ Môn đến điện Thái Hòa*. Tre publisher, Ho Chi Minh city.
- Nguyen Tat To (2020). Đánh giá và xác định quy trình bảo tồn, trùng tu di tích công trình Lầu Ngũ Phụng (*Master's Thesis*). Hue University of Sciences, Hue University.
- Phan Thuan An (1983). Nghệ thuật kiến trúc Ngõ Môn. *Song Huong magazine*, 1, 70-73.
- Phan Thuan An (1989). Ngõ Môn ở Huế. *Kien truc magazine*, 2(24), 36-40.