

Cultural Heritage Confronting Climate Change

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Climate change is the most serious, profound and comprehensive impact on the future of all humanity. In the coming years, these impacts will increase and become more serious. Vietnam is one of the five countries in the world most affected by climate change. The situation of climate change not only causes great impacts on economic fields, social security, environment..., but also has a strong influence on the protection and promotion of people's cultural heritage. For tangible cultural heritages that are invasive, reducing the lifespan of buildings, accelerating the degradation process, even submerging archaeological sites and relics, making it difficult to preserve relics, artifacts.... For intangible cultural heritage that is to change the way of living, transforming cultural space, leading to the loss of traditional practices, deforming, even disappearing some types of cultural activities, indigenous knowledge.... While governments and communities have very clear practical experiences on climate change, the implementation of measures to respond, especially in the protection of cultural heritage, has progressed very slowly. It is primarily a passive response, waiting for luck, no active plans and systems. Therefore, raising public awareness and response links between sectors, communities, and countries is an urgent requirement.

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Climate change has comprehensive and profound impacts on global society, and is now the most serious challenge facing humanity. Climate change occurs every hour of every day, and has a powerful impact on the development of all countries and regions. The increase in “greenhouse gas” emissions, principally CO₂, is the result of a combination of factors. These include mainly the influence of economic growth, industrialization, and the increased use of hydrocarbons, mostly for energy generation and transportation.

Not only does climate change have a tremendous impact on economies, social security, and the environment, but it is also a serious threat to national cultural heritages. With the increased frequency and intensity of natural disasters and the growing level of damage they cause, the profound implications of climate change for all aspects of human life must be better recognized if timely solutions to cope with them are to be found and implemented.

Climate change regularly manifests itself in global warming, sea level rise, floods, and abnormally hot weather, phenomena that are ever-present and inescapable. Nature seems to be forcing us to pay a very high price for our invasive and environmentally destructive actions, taken in the name of “development” and based on the misconceived idea that we are the “masters” who will overcome and stand above nature.

Climate Change in Vietnam in the Global Context and its Serious Consequences

Vietnam is one of the five countries that will be most severely affected by climate change. According to a

set of scenarios announced by the Ministry of Natural Resources and Environment, there are three possibilities for climate change and sea level rise in Vietnam, corresponding to a low, medium, or high rise of sea level.

According to the first, by the end of the 21st century, the average temperature across the country will increase by 1.1-1.9 °C, resulting in a sea level rise of 65 cm. That would submerge more than 5,100 km² of the Mekong Delta, or nearly 13 percent of its area. Under the second scenario, by the end of the 21st century, temperatures will have increased by 1.6-2.8 °C, total rainy season precipitation will have increased, whereas that of the dry season will have decreased. This would result in a sea level rise of 75 cm, which would put 20 percent of the Mekong Delta below sea level. According to the third scenario, temperatures will increase by 3.6 °C and the sea level would rise by 1 m, resulting in the submergence more than 30 percent of the area of the Mekong Delta (Ministry of Natural Resources and Environment, 2016).¹

Because of the complexity and incomplete understanding of climate change, both in Vietnam and globally, it was concluded that the first and third scenarios are unlikely. Rather, the second scenario is considered the most likely to occur, and is therefore recommended as the baseline for designing action plans to cope with climate change.

Based on that scenario, the climatic status of Vietnam in 2100, compared to the average of the period 1980-1999, is that temperature will have increased 2-3 °C, particularly in the Northeast and North Central regions, and in the Central Highlands, where the temperature increase would be faster. Dry season rainfall will decrease by up to 30 percent, whereas rainy season precipitation will increase by some 20-30 percent. Exceptionally rainy days with double the present recorded amounts will increase in number. The sea level rise would be the highest in the region between Cà Mau and Kiên Giang (82 cm), and the lowest in Móng Cái (64 cm). The national average would be 72.6 cm (Vietnam Association for Conservation of Nature and Environment, 2008).²

In Vietnam, the effects of climate change can be seen clearly in recent years. The principal effects are: (1) changes in the characteristics of rainfall, including amount, intensity, and the “precipitation process”, as well as changes in the beginning and ending times of the rainy season; (2) changes in the frequency, intensity, and patterns of extreme phenomena, including drought, forest fire, heavy rain, storm, flood, and tornadoes; and (3) the increased atmospheric concentration of CO₂.

The impact of climate change will become increasingly serious. In recent times, Vietnam has experienced frequent unusual natural disasters, such as typhoons, floods, landslides, drought, damagingly cold weather, and long heat spells. It is among the top 10 countries worldwide in the frequency of natural disasters. Increasingly, climate change is more extreme and of a larger scale and scope that causes great damage to people and property. Phenomena such as floods, cyclones, land subsidence, and landslides often occur in mountainous provinces, whereas storms, floods, sea level rise, and salt intrusion occur in the coastal plains.

The Mekong Delta, which has more than 80 percent of its area situated at less than 2.5 m above sea level, will be the region that suffers the most damage from climate change. Already the Mekong Delta has been affected by changes in water level, salt intrusion, and flood tides.

¹ According to this calculation, with 1 m rise in sea level, about 10 percent of the population would be affected directly, 90 percent of the rice area in the Mekong valley would be completely flooded, 4.4 percent of Vietnam would permanently flooded, with about 20 percent of communes and 9,200 km of roads being destroyed.

² Vietnam Association for Conservation of Nature and Environment, 2008. Conference on Global Climate Change and solutions for Vietnam. Hà Nội, February 26.

It is predicted that climate change and its impacts on the environment will continue to worsen. These will be extremely complex and unpredictable changes, such that promoting awareness of climate change and how to adapt to it is becoming an extremely urgent necessity worldwide.

Overview of Vietnam Heritage Treasure

Up to 2018, in the tens of thousands of historical and cultural monuments and scenic spots in Vietnam, 95 monuments have been classified as “National Special Monuments”; 3,447 monuments classified as “National Monument” and 6,092 classified as “Provincial Monument” (Ministry of Culture, Sports and Tourism, 2018).

And, so far, eight tangible heritages in Vietnam have been recognized as a World Heritage Site. These are the monuments of Huế, the scenic spot of Hạ Long Bay, Mỹ Sơn Holy Land, Hội An ancient town, Phong Nha-Kẻ Bàng National Park, the Imperial Citadel of Thăng Long, the Citadel of Hồ Dynasty, and Trang An relics complex. Other natural and cultural heritages will continue to be added.

Besides the archaeological monuments from the Stone Age, Bronze Age, and Metal Age, the unique artistic architectural monuments of the past, such as communal houses, temples, pagodas and shrines, palaces, tombs, ancient urban areas, trade villages, and trade streets, are among the historical and cultural monument treasures of Vietnam. Similar are typical historical monuments of the struggle, construction, and protection of the independence of the nation. These include the monuments of Bạch Đằng, Chi Lăng, Đống Đa, Điện Biên Phủ, and the Hồ Chí Minh Road, as well as the Củ Chi tunnels, Vĩnh Mốc, the prisons of Côn Đảo and Phú Quốc.

On the other hand, the tangible cultural heritage of Vietnam includes tens of millions of relics, antiques, and valuable national treasures. These are preserved and displayed in 159 museums distributed throughout the country, although most are concentrated in the great culture and tourist centers (Ministry of Culture, Sports and Tourism, 2018).

The cultural heritage of Vietnam also includes typical intangible cultural heritages, such as oral materials, handwriting, customs and habits, festivals, performing arts, traditional handicraft, outstanding medical values, traditional pharmaceuticals, culinary culture, and the traditional costumes of the ethnic groups of Vietnam. So far, 12 heritages have been recognized as representative of the intangible cultural heritage of humanity and intangible heritage in need of urgent safeguarding. For example, these are the Huế royal court music, the Space of Gong Culture in the Central Highlands, Bắc Ninh folk songs, *Ca trù* (ceremonial songs), the *Gióng* Festival of Phù Đổng and Sóc Temples, *hát xoan* (folk songs of Phú Thọ Province), etc.

Rich, diverse and unique cultural heritages are clustered in the North Delta and the Mekong Delta, the Northern Mountain Region and the Central Highlands, along the coastal region, along the trans-Vietnam road axis near major urban areas, and at major international border gateways. This provides favorable conditions for organizing focal centers of tourism. For many years, Vietnamese tangible and intangible cultural heritages have been an important tourist resource, and much attention has been paid to developing. However, they are often subject to the impacts of nature.

The Impact of Climate Change on Cultural Heritage in Vietnam

Tangible Cultural Heritage

According to the Law on Cultural Heritage, “tangible cultural heritage is the physical product of

historical, cultural, scientific value, including historical-cultural relics, landscapes, antiques, and national treasures” (Socialist Republic of Vietnam, 2010, Article 4.2). Tangible cultural heritages in Vietnam are those most frequently affected by the natural environment, so they will suffer increasing challenges from climate change. These may be either direct effects, such as storms, floods, high temperature, and erosion caused by heavy rains, or indirect effects, like high humidity, or damage caused by insects and micro-organisms that proliferate easily.

Vietnam has thousands of historical and cultural monuments and famous landscapes spread all across the country. Tangible cultural heritages are very abundant, with many tombs, temples, architecturally significant buildings, and ancient religious establishments. These heritages face the great impact of climate change. Regularly occurring annual rains and floods are damaging to the old houses and the historical and cultural relics in Hội An, the Imperial Citadel of Thăng Long, and the relic complex in the Huế Ancient Capital. Thunderstorms, flash floods, high temperatures, intense sunshine, and prolonged rain are threatening the survival of Mỹ Sơn Holy Land and Citadel of the Hồ Dynasty, as well as the ecosystem of the Phong Nha-Kẻ Bàng National Park.

For Huế Ancient Capital, several potential dangers can be identified resulting from climate change affecting heritage sites and relics. The first is unusual natural disasters, like floods, heavy rains, and storms, affect the clusters of relics and historical works, because they are usually located near the Hương River. This is exemplified by the Gia Long tomb and the Minh Mang tomb, as well as ancient trees, historical landscapes, various environments, and the system regulating water circulation in the area of the Imperial City. The second is the increased average annual temperature which is causing increased humidity and atmospheric pollution that affects the material quality of relics, particularly wooden relics with red-lacquer paint (*son thếp*), stone materials, and traditional mortar. Thermal expansion coefficients vary according to the type of building material. As a consequence, when the temperature changes the link between them is affected. Thus, a brick surface will be destroyed rapidly by the action of rainwater and the salt within the rain. This then permits an increased growth of plants on the brick surface and the development plant root systems on the wall. Mildew infestation also increases. The third is the risk of sea level rise that can affect several relics located near the sea, such as Hải Thanh Town (Phan, 2013, p. 395).

All heritages are now confronting the ravages of floods, storms, and heat, but those located in coastal areas are particularly vulnerable. With a coastline of 3,500 km, a great many communal houses, temples, pagodas, and shrines located in coastal villages are in danger of permanent disappearance as a consequence of marine transgression. Each year the coast of Vietnam is ravaged and abraded by dozens of powerful storms. In particular, monuments and archaeological sites, including the relics of cultures of Sa Huỳnh, in the Central Region, and Óc Eo, in the Southern Region, will be very difficult to maintain and preserve in the face of adverse weather conditions. This is because they are located mainly in coastal river basins and low-lying plains, so are prone to being easily swept away, disturbed and filled-in when disaster strikes. In the deltas of Vietnam, especially the Mekong Delta, thousands of old houses, works of art, and architectural monuments are threatened with deterioration owing to changes in climate and other natural conditions, not to mention by extreme and unusual weather phenomena. And the hot and humid tropical climate and increasing frequency of inundation will create ideal conditions for termites, various “worms”, moss, and moulds to attack heritages.

Many architectural monuments of the Việt people in the Hồng River Delta are located along the bank of the Hồng River. As a consequence, they are always at risk of being destroyed by flooding that causes erosion of

the banks and changes the river bed. History provides many examples of relics that suffered this fate. The Keo Pagoda is one case. This famous pagoda is said to date from the Ly dynasty. In the 17th century, owing to a landslide the pagoda was submerged in the Hồng River. The inhabitants of Dũng Nhuệ (Th ấ B ãnh) and H ầnh Thiệ (Nam Đ ịnh) villages rebuilt the Keo Pagoda along both sides of the river, as it is nowadays. Flooding also caused architecture relics in the low-lying areas to be long immersed in deep in water. This seriously affected the frame, materials and decorative art of the structure (Nguyễn, 2013, p. 199).

Often the architectural relics of the Việt people in the Hồng Delta are connected intimately with landscape space and are integrated with plants. Architecture and landscape space are two main closely interconnected factors that create the values of an architectural relic. Many relics are hidden under a canopy of ancient trees, creating a quiet and spiritual beauty. Climate change, though flooding, typhoon, and drought can destroy the plants around relics. In contrast, dry weather heightens the risk of fire destroying relics.

Together with the passage of time, climate change is always a major threat to tangible cultural relics. In the mountainous province of Lào Cai, the outdoor tangible cultural relics have been and will continue to be influenced directly, and will suffer rapid degradation, as exemplified below. *The Sa Pa Ancient Rock Field* was recognized by the Ministry of Culture and Information as a National Historic Relic in 1994. It has more than 200 rocks³, and is located along an 8 km² area in the Mường Hoa Valley, of the communes of Lao Chải, Tả Van, H ầu Th ờ, and S ử P ả. More than 60 percent of rocks have been seriously degraded. Over 50 rocks carry a variety of patterns and complex characters that have not yet been deciphered. These engravings are the only remaining legacy of an as yet unknown culture(s) that once inhabited the valley.⁴ As such they have enormous value in terms of science, culture, and history. However, climate change has caused the surface of the ancient carved rocks peel or crack, destroying all ancient characters and patterns (Lương Hồng, 2013, p. 58).

In addition, trade villages, cities, and a rich system of holy places are spread throughout Vietnam. They are similarly at risk if soaked by floods or high tides or affected by salt intrusion. Architectural works and ancient religious structures are usually made wood and brick, and so cannot easily withstand severe weather. The impact of rising temperatures, scorching sunshine, or rain accompanied by windstorms will degrade such structures rapidly.

Tens of millions of relics, antiques, and national treasures are preserved and displayed in 159 museums throughout Vietnam. Climate change makes the preservation of artifacts and relics more difficult, since they are usually made of paper, wood, bamboo, and iron, which are likely to be affected by changes in humidity, light and temperature. Hot and humid tropical climates create ideal conditions for the growth of microorganisms damaging to paper, woven, and leather goods, as well as to works of art such as oil paintings and silk paintings. Other materials, like sculptured stone, reliefs, and epitaphs, are more resistant. However, under the effects of extreme weather they are easily degraded, especially when kept constantly outdoors. Thus older architectural monuments are vulnerable to the effects of climate.

In addition, Vietnam is also extremely rich in natural heritages and renowned scenic spots, especially in coastal areas. Climate change will have a strong influence on biosphere reserves (Kì ầnh Giang and C ầ Mau), forest ecosystems (U Minh Thượng and U Minh Hạ), national parks (Ph ứ Quốc, Kì ầnh Giang, and An Giang), coral reef ecosystems, mangroves, and tropical forest sites. Some biosphere reserves and forest ecosystems will be

³ Survey and inventory data of 2007 of the Lào Cai Department of Culture and Information.

⁴ Product of the cooperation program between the Lào Cai Department of Culture and Information and the Ancient Far East Institute.

reduced in extent or even disappear completely. Their loss could never be compensated for.

Intangible Cultural Heritage

The treasure of Vietnamese cultural heritages also includes the diverse and special intangible cultural heritages of many ethnic communities, all with their traditions, customs, festivals, performing arts, traditional crafts, indigenous knowledge of traditional medicine, cuisine, dress, and behavior, that are adapted to and compatible with local ecological systems.

Intangible cultural heritage embraces the behavior of a person with respect to the natural environment, a cultural creation made to adapt to the conditions of the natural environment, including the climate, mode of living, means of production, and cultural activities associated with particular living conditions.

Climate change will alter the human ecological environment and living conditions of communities, thereby modifying cultural space, and disrupting the environment nurturing the intangible cultural heritage associated with it. Thus, the final consequence is that people change their cultural characteristics, such that some types of traditional cultural heritage become distorted, fall into oblivion, or even disappear entirely. For example, some forms of rituals and festivals associated with fisheries, agriculture, and forestry will gradually disappear when a landscape and environment changes. The scarcity of traditional materials will lead to some products of traditional trade villages being altered or lost (e.g., pottery, silk, seafood, agricultural products, and food types, among many other things).

Climate change would also alter the production practices, farming methods, habits, and way of living of people. That would accelerate the process of deformation and passing into oblivion of traditional cultural values embedded in customs and practices, local knowledge, labor, production, behavior toward the natural environment, and health care and protection. Climate change will have its most powerful impact on the lives of those communities with livelihoods tied to primary production, i.e., agriculture, forestry, farming, and fishing.

Intangible cultural heritage is an important component of the national cultural heritage, contributing to the enrichment of human life and forming the manner, style, and cultural characteristics of each region. Lacking a policy to respond promptly for their protection, these cultural heritages would be vulnerable to disappearance. For example, the special natural conditions of the Mekong Delta have contributed to various types of unique cultural heritage, and cultural creations associated with a canal civilization. Climate change and sea level rise would inundate most of the land, submerging the cultural space with all its cultural assets.

The Gap between Awareness and Action in the Protection of Cultural Heritages

Although the government and communities have a fairly complete awareness of and information about climate change and its harmful impact on economy, environment, and social security, their understanding of its implications for cultural heritages seems vague and lacking urgency. As a consequence, the implementation of coping measures and those to minimize its negative impacts on cultural heritages is slow.

On this issue, there is a large gap between the government and the general public in terms of awareness and action. Responses of authorities at all levels, relevant ministries and agencies, and communities are mostly passive, fragmentary, and unplanned. Heritage protection plans are not made in a positive, consistent, and proactive manner. Local awareness of prevention measures and the protection of cultural heritages faced with the impacts of climate change are still very sketchy and superficial. Many people are

indifferent and passive to the point of being irresponsible regarding the potential risks of climate change.

In Vietnam, most researches to provide a scientific basis for actions to protect cultural heritages and cope with climate change are in its initial stages. Although some scientific themes have been developed by institutes, and a number of programs and action plans for heritage conservation set up, they lack uniformity and coordination among the ministries, agencies, and sectors involved. In reality, they do not provide practical solutions to the problems raised by climate change.

The Ministry of Culture, Sports, and Tourism also has made preliminary studies on this issue, mainly to identify the current status of climate change impacts on its areas of responsibility. However, the participation of State specialized management agencies is incomplete, and the ministry lacks a long-term strategy and plans for this work.

Several Measures for Protecting Cultural Heritages

Protection of cultural heritages against climate change is urgent and immediate, yet long-term and complicated. Implementation of programs for coping with and reducing climate change impacts on cultural heritages must be embedded within the overall strategies of the relevant ministries and agencies. At the same time, implementation should be coordinated and integrated with the social and economic development programs of each locality.

To help reduce the risk of climate change and cope with its impacts on cultural heritages, attention should be paid to some of the following solutions.

Solutions to Raise Awareness and Promote Education

First, it is necessary to raise government and public awareness about the harmful effects of climate change on cultural heritages. As part of this, it is advisable to strengthen information and disseminate knowledge for coping with climate change to preserve the cultural heritages of Vietnam.

Second, to ensure the protection of cultural heritage in an environmentally friendly, non-invasive manner, it is necessary to promote education and encourage the general public to change its behavior toward the environment. Often, the causes of climate change include both natural and human agents, although the latter play the major role.

Third, it is advisable to design the contents, approaches, and practical methods to implement extensive educational programs, in order to promote the general public's interest in protecting cultural heritages against climate change.

Solutions to Establish a Scientific Basis for Actions

It is necessary to promote scientific research for assessing the risk, scope, and transformation of climate change having an impact on cultural heritages. It is essential to have in-depth research for a complete and comprehensive evaluation to obtain practical and accurate data that will provide a sound basis for action.

It is necessary to inventory heritages and heritage groups with a high risk of being destroyed or disappearing from the impacts of climate change. This activity should focus on the coastal provinces of Vietnam. It is essential to promptly remove or protect heritages from the threat of natural disasters. Also, it is advisable to develop research programs that follow closely the conditions in each region, and to propose response plans appropriate to each object.

It is necessary to create a long-term strategy to deal with climate change and prevent or mitigate its impacts. Implementation must be in stages, and realized via programs and specific action plans.

Solutions to Implement the Action Plan

To realize the programs and action plans stated above, it is necessary to have specific solutions consistent with the protection of the cultural heritages in different geographical areas.

It is imperative to attract financial and human resources to enable timely and specific responses aimed at preventing or slowing down the process of climate change, at reducing its impact on cultural heritages, and at adapting to climate change.

It is necessary to apply advanced science and technology, and therefore necessary to strengthen international cooperation to address issues of climate change and cultural heritage conservation. It is necessary to enlist the support of the communities, as well as national and international organizations.

Solutions for Synchronous Operation

It is necessary to link ministries, industries, and sectors in coordinated action to deal with climate change, so that the protection of cultural heritages is synchronized between the central and local levels, and between government and the general public.

The preservation and promotion of Vietnamese cultural heritage values cannot be separated from other activities, including environmental protection, prevention of and recovery from natural disasters, and coping with and reducing the impacts of climate change.

Mitigation of the negative impacts of climate change on the development of all aspects of the country in general, and on protection of the national cultural heritages in particular is now an urgent and shared task. This task requires the support, efforts, enthusiasm, wisdom, and commitment of the whole of Vietnamese society, including those who work on cultural aspects.

Conclusion

As one of the countries most heavily affected by climate change, Vietnam considers it a vital issue to deal with. The existence of climate change in Vietnam has become clearer than ever. Increasing temperatures, rising sea levels will cause flooding, salinity, water sources affecting agriculture, causing great risks to industry and future socio-economic systems.

Therefore, Viet Nam's response to climate change must be linked to and towards sustainable development, based on low carbon economy and green growth, taking advantage of opportunities to innovate and enhance national strength. The government must conduct at the same time minimize greenhouse gas emissions and adapt to climate change, in which adaptation in the first decades of the 21st century must be the focus.

In responding to climate change, solutions must be integrated, systematic, synchronous, interdisciplinary, inter-regional, combining global and national, prioritizing focus suitable to each stage. In addition, solutions must be fully considered on the basis of science, economic efficiency and taking into account the risks and uncertainties of climate change, combining technical solutions and social, cultural solutions, combining scientific knowledge and indigenous knowledge.

References

- Department of Meteorology and Hydrology. (2010). Ministry of Natural Resources and Environment and Department of Natural Resources & Environment of Quảng B ình Province. *Conference on "Raising Awareness to Cope With Climate Change"*, March 5, Quảng B ình Province, Vietnam.
- Lương Hồng, Q. (2013). *Initial assessment of impacts of climate change on cultural and artistic activities*. Hà Nội: Social Sciences Publishing House.

- Ministry of Culture, Sports and Tourism. (2018). *Report on development of culture, sports and tourism of Vietnam*. Retrieved from <https://bvhttdl.gov.vn/di-san-van-hoa-620492.htm>
- Ministry of Natural Resources and Environment. (2016). Three climate change scenarios. Retrieved from http://www.imh.ac.vn/files/doc/KichbanBDKH/TTkichban_2016.pdf
- Nguyễn, T. T. T. (2013). *Impact of climate change on the architectural heritage of the Hồng River Delta and Cửu Long Deltas, Vietnam*. Hà Nội: Social Sciences Publishing House.
- Phan, T. H. (2013). *The cultural heritage of Huế confronting climate change*. Hà Nội: Social Sciences Publishing House.
- Socialist Republic of Vietnam. (2010). *Law on cultural heritage*. Retrieved from <https://thuvienphapluat.vn/van-ban/Van-hoa-Xa-hoi/Van-ban-hop-nhat-10-VBHN-VPQH-2013-hop-nhat-Luat-di-san-van-hoa-204826.aspx>
- UNDP. (2008). The fight against climate change: Human solidarity in a divided world. *Human Development Report 2007-2008*. Retrieved from http://hdr.undp.org/sites/default/files/reports/268/hdr_20072008_en_complete.pdf
- Vũ Q. (2009). Climate change and biodiversity in Vietnam. *Bulletin No. 219*, Hà Nội National University.
- Vũ, V. (2009). Climate change: Human threat in the future. *Electronic Newspapers*, June 1, 2009.