

The Historical Value and Contemporary Role of Vernacular Wisdom: The Case of Zengchong Village

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ABSTRACT Vernacular heritage embodies the great wisdom used by the ancients over thousands of years to create their habitats. By adhering to vernacular wisdom, the unique production modes and lifestyles shown in vernacular heritage created an ideal harmonious living environment in consensus with nature using orderly and rational methods for using natural resources. This study analyses the value of vernacular wisdom, establishes a content system based on three factors, i.e., human needs, productivity and nature from the perspective of the human–nature relationship, and observes that the value of vernacular wisdom is to co-ordinate responses to human–nature conflicts. The representative vernacular wisdom of Zengchong Village, a Dong village in Guizhou Province, China can be summarised into three types: wisdom about physiological needs reflected in the combination of agricultural production with highly intensive living space systems and survival skills to make the best use of everything; wisdom about security needs reflected in the barn, fire-prevention and flood-control systems; and wisdom about self-actualisation, esteem, love or belonging reflected in social interaction and self-management, religious beliefs and identity. In addition to the conservation of the built vernacular heritage, vernacular wisdom should be emphasised in village planning and management to co-ordinate responses to new human–nature conflicts. Thus, a state of balance between human needs, productivity and nature can be achieved to realise the goal of sustainable rural heritage development.

KEYWORDS vernacular heritage, vernacular wisdom, Guizhou Province of China, Zengchong Dong Village, rural revitalisation

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Introduction

As ‘combined works of nature and humankind’ (UNESCO 2015), rural landscapes are the result of the production and use of natural resources (Zhang and Stewart 2017). They embody the ancients’ great wisdom over thousands of years in creating their habitats. Unique production modes and lifestyles were formed to create a harmonious, ideal living environment by adhering to vernacular wisdom, which is the combination of orderly and rational methods for using natural resources in consensus with the natural environment. A variety of resources for development flowed from rural to urban areas during the rapid urbanisation in China of the past 30 years, which resulted in a great decrease in the rural population and other symptoms of decline, such as the hollowing out of an aging population. The needs of village residents have

also simultaneously undergone fundamental changes. Spontaneous construction has created a disorderly situation leading to different degrees of destruction to rural heritage. With central government giving greater attention to rural heritage in recent years, a large amount of money has been invested in rural areas for rural heritage conservation and revitalisation¹. On the one hand, these strongly top-down interventions conserved, renovated and improved the infrastructure of existing physical spaces. On the other hand, these interventions also created several new problems and sometimes violently damaged the relationships between modernity and tradition and between society and nature.

Rural landscapes reflect the changes and evolution of the inhabiting society while also reflecting the adoption of technologies at different historic times (Lennon and Han 2012). The process of development of historical settlements



Figure 1 Location of Guizhou Province (Source: National Bureau of Surveying and Mapping Geographic Information, map approval code: GS[2016]2883).

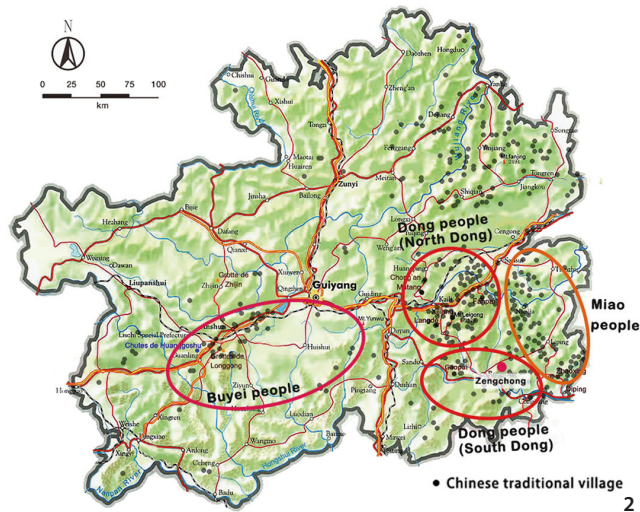


Figure 2 Distribution of Miao, Dong and Buyei Minorities in Guizhou Province (Source: the authors).

in China and worldwide shows that using limited resources to meet peoples' growing needs under different productive conditions requires vernacular wisdom to constantly adjust the human–nature balance: i.e., 'without the land and the knowledge that comes mainly from use of the land, we as indigenous peoples cannot survive' (Baer 2002). In the context of today's contradictory human–nature relationships, a new type of contemporary vernacular wisdom is needed for the conservation and development of historical settlements.

Zengchong Village in the south-eastern area of Guizhou Province was recognised early for its historico-cultural heritage. Its outstanding universal value is because the village has not experienced large-scale tourism development, nor much intervention from outside forces²; therefore, its original traditional vernacular wisdom has been well preserved. From 2014 to 2015, more than 20 teachers and students from a joint Chinese–French workshop³ launched in collaboration between the College of Architecture and Urban Planning at Tongji University in China and the École de Chaillot in France conducted a research survey in Zengchong Village. This survey was designed to not only record the remaining heritage, but also analyse the traditional vernacular wisdom and the interconnections between the remaining structures and the wisdom in an attempt to obtain contemporary vernacular wisdom, which may be used in the conservation and development of Zengchong Village, among many other Chinese rural heritage sites.

Traditional Human–Nature Contradictions in the Dong Villages of Guizhou Province

Dong villages mainly refer to the settlement areas distributed in south-eastern Guizhou Province inhabited by the Dong minority, who have been rice farmers since the Ming Dynasty. The *ganlan* stilt-type residential buildings, drum towers, wind and rain bridges, and rice terraces with Dong cultural features are especially unique in vernacular architecture. The Dong villages form a unique regional cultural phenomenon with a vital role in Chinese vernacular architecture.

Characteristics of Natural Conditions

Natural environmental factors such as climate, soil, water and topography determine peoples' choices of agricultural livelihood as well as the location and development of settlements.

A Limited and Scattered Cultivated Land

The undeveloped, harsh and forested mountains of south-western China were the natural foundation for the formation of a Dong village in south-eastern Guizhou Province. Guizhou Province is an eastern area of the Yunnan–Guizhou Plateau with an average altitude of 1,100 m. The mountainous terrain and karst landforms of the plateau are the geographical features of Guizhou Province. The mountainous and hilly areas comprise 92.5% of the land area of the province. The topography fluctuates greatly within Guizhou Province; therefore, the hills of karst peaks and clusters are not suitable for agriculture

development. Thus, Guizhou Province's cultivated land areas are mainly small, scattered in negative or broken topographic areas, such as basins, depressions and valleys. The karst plateau environment's mountainous landscape with canyons means that Guizhou Province's ethnic groups are scattered widely, but intensively settled in small areas. Thus, their settlements are mostly distributed along the edges of the peaks in low-lying land and valley clusters (Hu et al. 2014). Mountainous, hilly and basin areas in south-eastern Guizhou Province comprise 87.7%, 10.8% and 1.5% of the total area, respectively (ETOG 2008, 5). The region has been historically described as 'nine mountains, half water and half field'. The settlements and living conditions of the Dong people were logically restricted to some degree because of the limitations of the surrounding terrain.

Abundant Water

Most Dong settlements were placed on hills and by water. In addition to arable farmland, water is another important factor to consider in choosing locations for settlements. South-eastern Guizhou Province boasts more than 2,900 rivers, with the Qingshui, Wuyang and Duliu rivers being the major rivers. The Duliu River flows from the west to the south-east through Rongjiang and Congjiang counties (ETOG 2008, 3), which is the largest watershed in the province; thus, these rivers provide fertile conditions for the implementation of hilly paddy rice cultivation in south-eastern Guizhou Province. The unique natural environment of the south-eastern Guizhou Province facilitates local terrace wetland agriculture, which gives Guizhou Province the title of the 'land of waxy rice'. The compound system of cultivation is extended by the inclusion of duck and fish industries with that of rice (Wang 2014).

Dense Forests

South-eastern Guizhou Province is characterised by its verdant mountains covered by lush fir forests, which are also known as a 'sea of fir forests'. According to Brief Knowledge of Southern Guizhou, which was written by Emperor Qianlong of the Qing Dynasty, 'From Qing River down to Maoping as far as 200 *li* (100 km), both sides have no gap in the sky and are all dense forests.' During the period of the Republic of China, the banks of the Qingshui and Duliu rivers were covered with luxuriant trees and 20- or 30-m high cedar trees could be seen everywhere. In 1949 and 2005, the forest coverage rates were 56% and 53.68%, respectively, although these forests were reduced to some extent as industrialisation developed (ETOG 2008, 5).

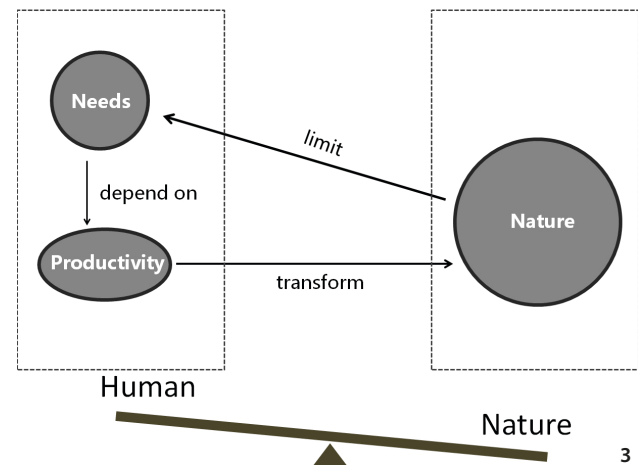


Figure 3 The human-nature conflict of 'weak human and strong nature' (Source: authors).

These three factors produce the main natural environment for the basic formation and development of Dong settlements in Guizhou Province.

The Characteristics of Settlement Formation

The ancestors of several ethnic groups migrated hundreds of years ago from the surrounding areas to Guizhou Province, where they gradually settled in villages during the process of farming or semi-nomadic production. Each settlement was relatively closed off to the surrounding area due to the difficult terrain of the karst plateau mountains; thus, the villages were self-governed for a long time. This distribution characteristic of being widely scattered but intensively settled in a small area during the process of migration and settlement (Zhou 2016) helps different cultures to shape, develop and inherit a diversified and unique landscape. Today, south-eastern Guizhou Province is home to many ethnic minorities such as the Miao, Dong, Han, Shui, Buyei and Yilao ethnic groups, with the Miao and Dong minorities being the majority groups (Figure 1, Figure 2). Thus, the region is characterised by different settlement types, such as Dong, Miao and Tunpu settlements, according to their cultural differences.

The north-south cultural differences between Dong villages were formed during Ming Dynasty constructions. In response to the uprising of a Dong farmer, Wumian, during the 11th year of Hongwu Emperor (1376), the Ming Dynasty established the governance of the Qingshui and Duliu river basins under the jurisdictions of Zhenyuanfu and Lipingfu, respectively. A Han settlement was placed in the middle of the region to separate the Dong minority groups. The cultural differences between the north and south Dong minority groups were deepened by economic



Figure 4 Bird view of Zengchong Village (Source: Peng Zhang).

development during the Qing Dynasty. A large-scale ‘bureaucratisation of native officers’ was performed during the reign of Emperor Yongzheng in the Qing Dynasty. The abolishment of the hereditary Tusi system and army squadrons, and the dredging of river channels promoted the development of agriculture and handicrafts industries and the prosperity of cedar trade in the Qingshui river basin. During the Ming and Qing dynasties, the northern areas of Guizhou Province were home to armies and merchants.

With many Han immigrants flocking into the northern Dong district from the central plains and the timber trade flourishing in the Qingshui River basin, this area was affected and extensively infiltrated by the Han culture; therefore, the region has absorbed and integrated some of the main features of Han culture (Long and Lang 2011). By comparison, the southern Dong district was less affected. The ‘Six Dong’ and ‘Nine Dong’ settlements are the two largest and oldest in the southern Dong districts. These villages are mostly located in remote areas and have little contact with the outside world; thus, they have preserved their primitive state and traditional cultural customs. Therefore, the spontaneity and nature of their vernacular wisdom can be observed in a relatively closed environment. Zengchong Village is one of the typical villages in this region.

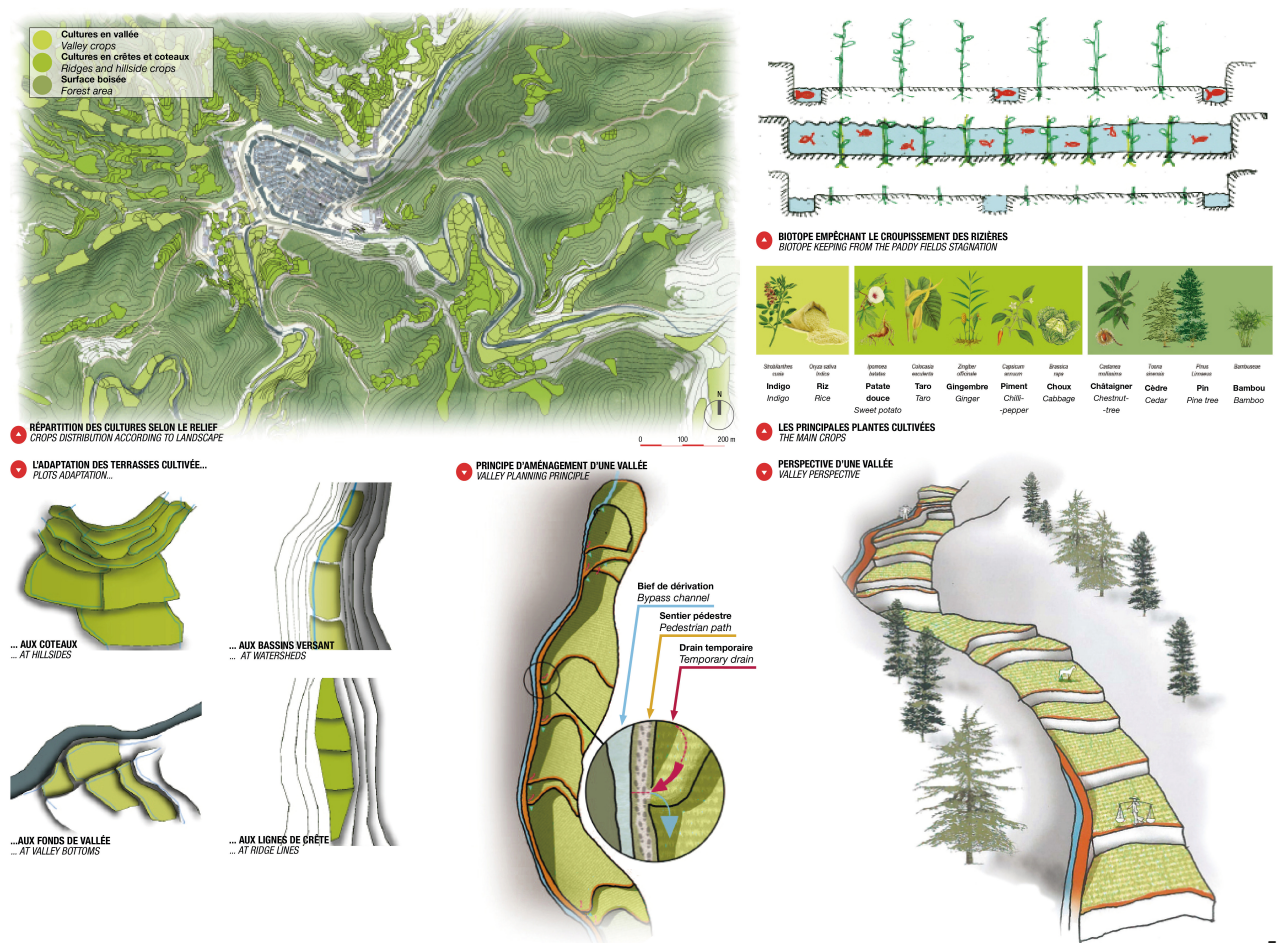
The Features of ‘Weak Human and Strong Nature’ in Conflict

Rural settlement development is the dynamic evolution of human utilisation of the natural environment, where the relationship between society and nature is interdependent,

but unequal in status and function. In their small and scattered settlements among the harsh mountainous terrain and karst landforms of the south-western plateau, the Dong people were initially confronted with the human–nature conflict of ‘weak human and strong nature’. Thus, their productivity was underdeveloped. The natural environment placed greater restrictions on the Dong people’s ability to transform nature to accommodate their society (Figure 3).

The Traditional Vernacular Wisdom of Dong Villages in Guizhou Province: The Case of Zengchong Village

The Dong village, Zengchong Village was established more than 600 years ago is in the north-western area of Congjiang County in the south-eastern autonomous prefecture of Guizhou Province. The village is in the ‘Nine Dong’ area at the junction of the Guizhou, Hunan and Guangxi provinces and is located on the flat land of the river valley between mountains, where the terrain is gentle. Verdant mountains and the Zengchong River, which originates from Tuo Miao Mountain, surround the village on its western, southern, and northern sides (Figure 4). The natural environment forms a delightful landscape, which includes drum towers, wind and rain bridges, barns, *ganlan* dwellings, theatre stages and subcellar housing. Water channels between several ponds crisscross the village, the lanes between the sloping roofs of dwellings are covered by bluestone slabs, and a drum tower stands in the village centre. This is an excellent example of the



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Figure 5 The terrace system (Source: outcome of Zengchong Chinese-French Workshop).

perfect combination of ethnic architecture and natural environment in the Dong minority area. By cultivating farmland, building houses, setting up villages and regulating their self-growth using their own system, the ancient Zengchong villagers used their traditional vernacular wisdom to co-ordinate responses to traditional human-nature conflicts and resolve their settlement development problems.

The Vernacular Wisdom of Zengchong Villagers Meets Their Physiological Needs

The vernacular wisdom used by Zengchong villagers to obtain food, water and natural resources for building dwellings and basic living facilities is described in the following subsections.

Compound Agricultural Production System

Farmers, herders and fishers worldwide use their local natural resources in particular ways that integrate the conditions of the landscape, its hydrologic systems and

climate across several generations to create, develop and maintain specialised agricultural production technologies, which form unique ecosystems (Zhang and Stewart 2017). A compound agricultural production system was developed in Zengchong Village.

Zengchong Village has a population of 1,466 with 66.2 ha of arable land, including 64.5 ha and 1.7 ha of paddy fields and dry land, respectively. The average amount of cultivated land area per person is 446 m², but it is scarce and fragmented because of the village's mountainous plateau terrain. To maximise the arable land conditions during the settlement of the area, the ancient villagers transformed some hills and low mountains into paddy fields. These paddy fields were cultivated on hillsides, river banks, valleys and ridges (Figure 5). In Zengchong Village, rice is harvested biannually or the fallow land is filled with water in winter after a harvest season. Ridges along the contour lines of the slope were constructed using soil to create the rice paddy terraces. The paddy shapes follow the contour of the hillside, which can be beautifully narrow

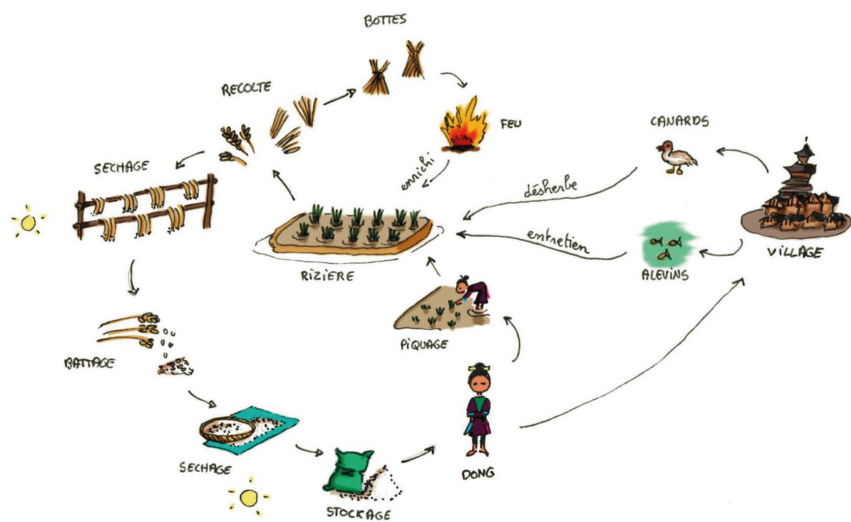
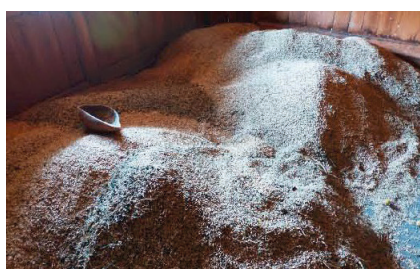
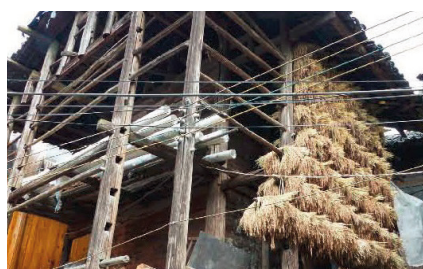


Figure 6 Compound agricultural production system (Source: outcome of Zengchong Chinese-French Workshop).



Chronological hypothesis

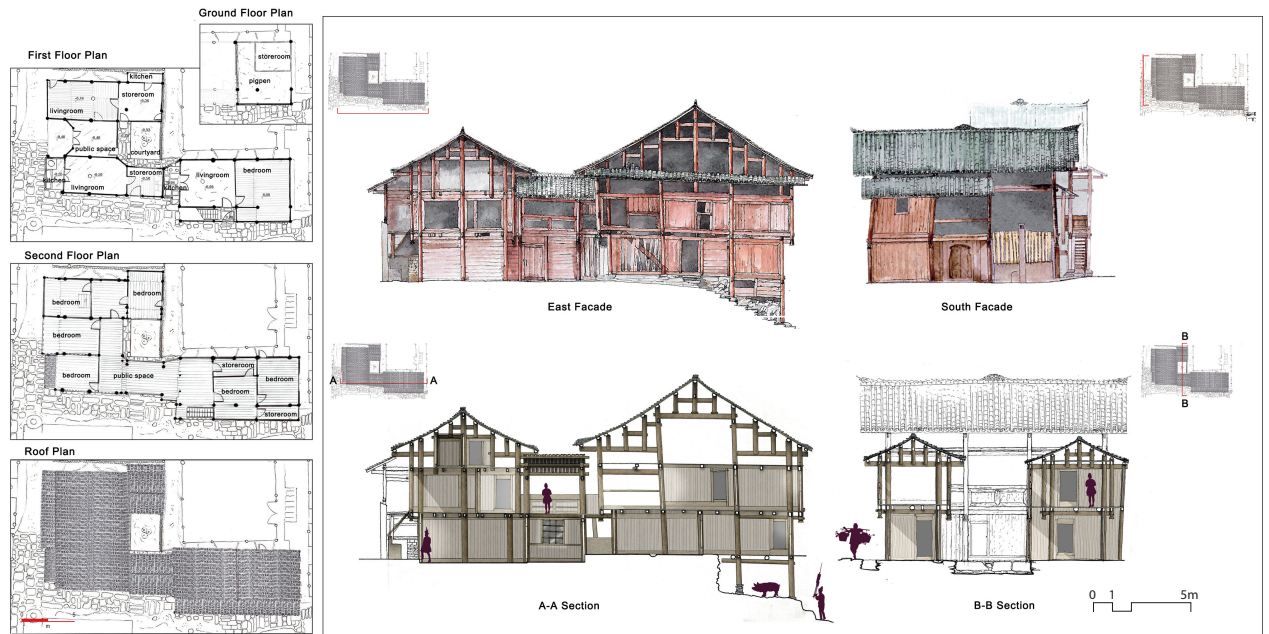
- Plots built before 1949
- Plots built between 1949 and 2010
- Plots built and/or renovated after 2010

Figure 7 Residential texture and construction order (Source: outcome of Zengchong Chinese-French Workshop).

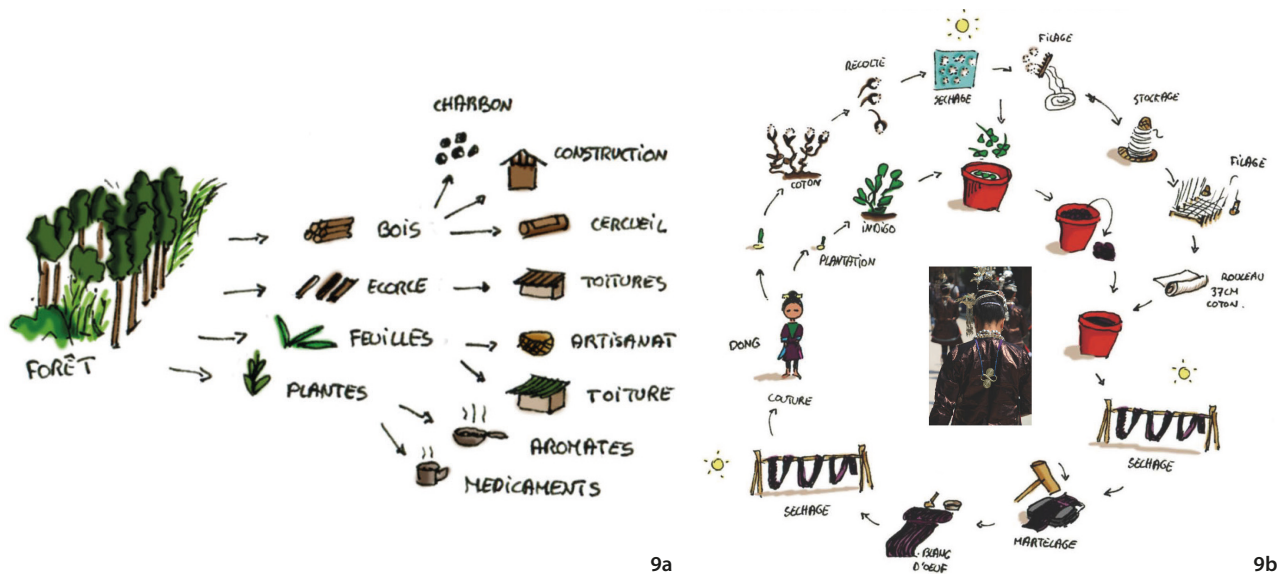
and slender or open and wide. The rice terraces' unique drainage and irrigation systems enabled them to survive wind and rain erosion over hundreds of years. Rice terraces are enduring and fertile instead of dry and decayed; thus, they are the major providers of food in mountainous areas (Wu and Huang 2011).

In addition to the reclamation of paddy fields, the ancient Zengchong villagers also developed a compound agricultural production system incorporating fish and duck industries with their rice industry. Fingerling fish were put in

the rice fields at the same time as the rice seedlings (Figures 5, Figure 6). As soon as the fingerlings grew to two or three inches, baby ducks were added to the paddies to form a compound agricultural production system. Compared with the single crop from the rice fields, the compound system creates a more complex food network, which can then stabilise the whole system by fertilising the soil, improving the ecological environment of the farmland and avoiding the influence of chemical pesticides on the biodiverse agricultural products. However, there is no natural harmony



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9a

9b

Figure 8 The typical residential house in Zengchong (Source: outcome of Zengchong Chinese-French Workshop).
Figure 9a and 9b Traditional handicrafts transformed natural resources into all kinds of goods necessary for the daily life (Source: outcome of Zengchong Chinese-French workshop).

between rice, fish and duck because the ducks may eat the fish and rice. An ecological balance can hardly be achieved without wisdom; therefore, the Dong people's vernacular wisdom is effective. This compound system functions well because the Dong vernacular wisdom outlines strict selections for these three species: i.e., glutinous rice should be planted, carp or grass carp breeds should be introduced and the small Shan Ma duck breed (also called 'yuanyang duck' or 'small aromatic duck') should be chosen (Wang 2014). The system can efficiently output the desired benefits only by matching the specific habits of those three varieties of rice, fish and duck.

Highly Intensive Living Spaces

To strike a balance between food production and cultural life, the Zengchong villagers also used vernacular wisdom to a large degree in the selection of their village site, layout and residential construction.

First, the village location was situated on the open, wide flat land between the surrounding mountains and river. By living near the river, the Dong minority can use the river water to meet their daily-life needs, such as washing, raising ducks, and rinsing and washing vegetables. Rainwater can also be drained from the dwelling areas into the river.



Figure 10 Barn upon pond (Source: Cultural Relics Protection Centre of Guizhou Province).

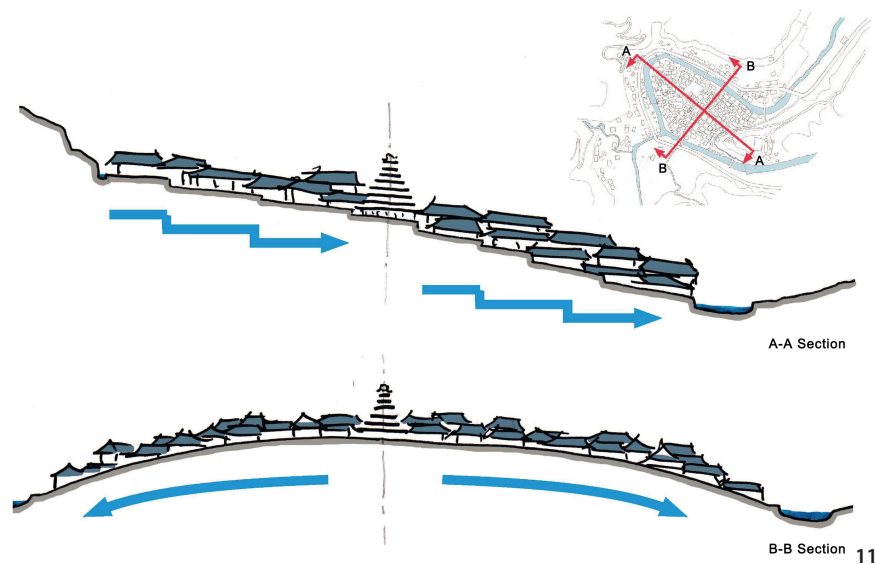


Figure 11 Micro-topography adjustment (Source: outcome of Zengchong Chinese-French workshop).

Second, in terms of the overall shape of the village, the buildings were distributed along the riverbank and the linear characteristics of the village's inner layout are obvious (Figure 7).

The traditional wooden houses in Zengchong Village are mainly two to three stories high. To guarantee the availability of cultivated land and ensure intensive use of the limited land area, the internal layout of the houses compressed the living area as much as possible. A continuous area is formed by narrowing the buildings' internal spaces and area separations in addition to arranging them in a close row with overlapping eaves. The adjacent houses skilfully create the maximum amount of shelter by borrowing their neighbour's eaves to naturally form a harmonious overall roof shape in a highly intensive land-use mode.

Third, the Zengchong Village houses are all made from locally grown fir trees and most of them are *ganlan* stilt-type buildings. The first floor is generally given over to productive ancillary space for necessities such as farm tools, firewood, and pigs, while the second floor is a living space comprised by fireplaces, bedrooms and living rooms. The third floor is given over to a granary and additional bedrooms (Figure 8). Each residential area is co-ordinated by sharing the limited land resources equally. The hearths inside the residence are the core of the interior space designs and the basic unit indicating the number of family members. Thus, the number of people living in the household can be identified by counting the number of fireplaces if the family members lived together. The orderly living spaces can satisfactorily facilitate a wide variety of residential activities.

Survival Skills to Make the Best of Everything

The Zengchong villagers also developed a set of intelligent survival skills for their basic living needs. The villagers used the locally available wood to make houses, granaries and coffins. They also cooked with dried wood found in the mountains. The villagers used bamboo and rattan to weave bamboo baskets, sickle baskets, dustpans and other production tools for living. For example, natural water pipes were made using bamboo tubes to channel the nearby mountain springs and river water to the houses or rice fields, which rely on the terrain to create a natural water 'tap'. The ancient lanes and canals were paved using nearby stones. Clothes were made by weaving cotton into cloth, which is then dyed using indigo grass (Figure 9). Thus, traditional handicrafts transform the locally available natural resources into all kinds of goods necessary for daily life. Therefore, vernacular wisdom established an organic practice of recycling resources for a better life.

Vernacular Wisdom to Meet Security Needs

Having completed their basic elements for survival, the settlements' stable long-term development depends on food security, resistance to natural disasters and prevention of man-made disasters, such as enemy attack or fire.

Barns to Safeguard Food Security

Food security is vitally significant because houses can be rebuilt if they burn down, but people will starve if their food supply is destroyed. Therefore, the need to preserve food and avoid loss of food stores emerges as a tough

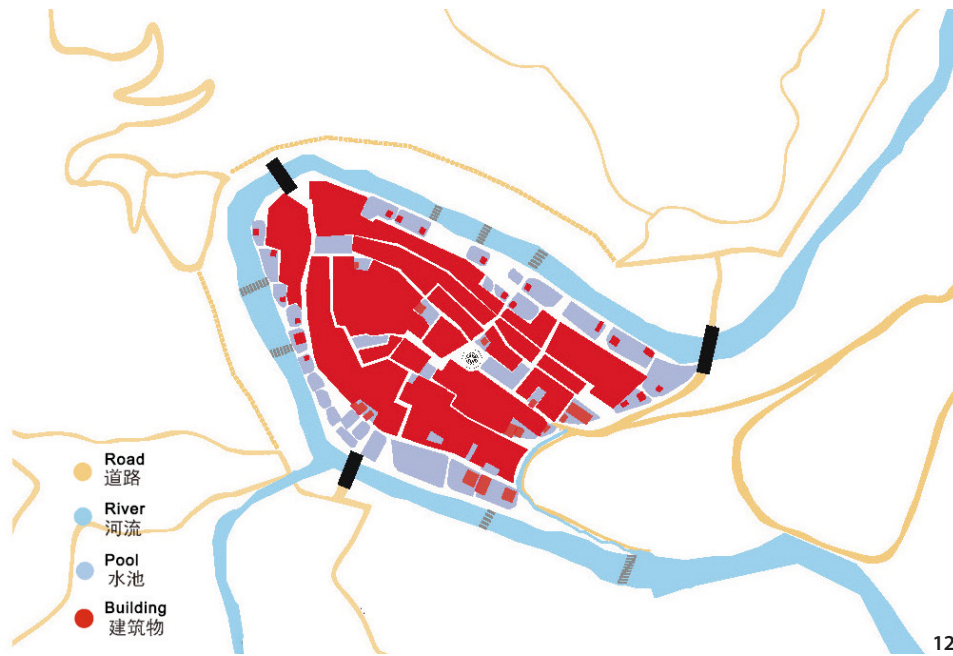


Figure 12 Ponds located in the outside from the Ming and the Qing Dynasty to 1949 (Source: outcome of Zengchong Chinese-French Workshop).

issue. The Zengchong villagers used barns as a solution for rice storage. These rice storage buildings are usually built near a pond for the purposes of fire prevention and rat proofing (Figure 10). Zengchong villagers initially built plenty of granaries beside the ponds outside the village. The ground floor of the granaries are usually used to rear pigs. Rows of wood for drying and storing rice are highly distinctive features of the façade of the barns.

Micro-Topography Adjustments for Flood Control

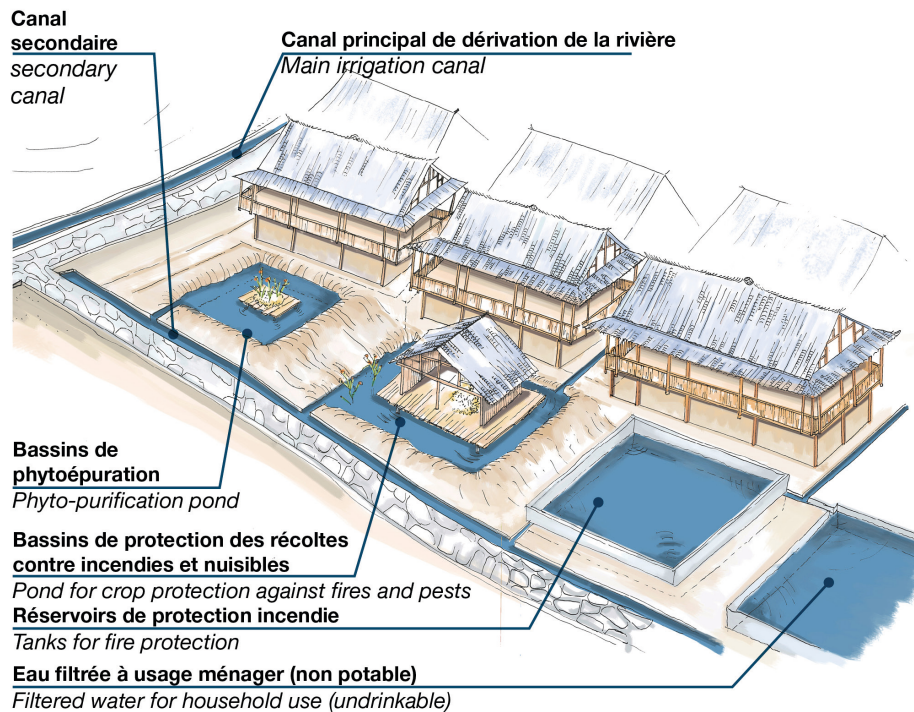
The Zengchong River embraces the village on three sides; thus, floods are a frequent occurrence throughout history, which result in the loss of villagers' properties. Historical research showed that four families from the Zengchong Village built a flood bank and docks during the period of the Republic of China. The western edge of the village is in low terrain near the Zengchong River, while the eastern end of the village is on relatively higher terrain near the mountain (Figure 11, A–A section). Based on the mountain contours, the ancient Zengchong villagers created a series of flat spaces for building houses so that water could flow freely across the slope from east to west for drainage and water circulation in the canals. Both sides of the village's south-to-north section are connected to the Zengchong River (Figure 11, B–B section). After the reconstruction, Zengchong Village was situated on high terrain in the middle, but low terrain to the north and south. The drum tower was located in the centre of the village, which allowed water to be smoothly drained away into the river to save the village from floods caused by heavy rain and rising water.

The Role of Ponds and Canals as a Fire Prevention System

South-eastern Guizhou Province is rich in plant species, forest resources and vegetation; thus, fires can happen easily. In addition, the village structures were intensively built to minimise their footprint on the available land and were made from wood, which meant that the whole village could become instantly fire-stricken during an uncontrolled or accidental fire. In response to this perennial problem, Zengchong villagers used their vernacular wisdom to build a fire prevention system of their own using the ponds in the landscape. Studies have shown that from the Ming and Qing dynasties to the Republic of China, serial ponds located outside of the villages were originally used as a fire protection system (Figure 12).

In addition to the ponds surrounding the village, the ancient Zengchong villagers also built numerous ponds next to their houses to prevent fire. For example, a large pond was dug in front of the drum tower and the inner ponds were connected by a series of canals. Normally, these ponds are filled with water in case of fire. These fire prevention systems comprising ponds and canals significantly reduced the incidence of fires (Figure 13).

In addition to the ponds' fire prevention function, Zengchong villagers also cultivated fishes in the ponds adjacent to their houses. The canals also integrated drainage, rinsing and irrigation functions. Thus, the villagers extracted the maximum possible use of the available land. Therefore, the landscape of the village fully demonstrates the vernacular wisdom of the Zengchong villagers.



SYSTÈME HYDRAULIQUE: PRINCIPE DE FONCTIONNEMENT HYDRAULIC SYSTEM: OPERATING PRINCIPLE 13



Figure 13 Analysis of ponds and canals in Zengchong (Source: outcome of Zengchong Chinese-French Workshop).

Figure 14 Public space and activities in the village (Source: outcome of Zengchong Chinese-French Workshop).

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Vernacular Wisdom that Meets Villagers' Needs for Communication, Respect and Self-Realisation

Social Interaction and Self-Management

Due to their harsh living environment, Zengchong villagers reduced their living areas as much as possible by narrowing the spaces between blocks to intensify the housing site in terms of its land use. However, the villagers also wisely made full use of the corners of the village, such as

ponds, porches and roadways, and many daily activities take place in these spaces (Figure 14). For example, traditional indigo-dyeing activities naturally occur in front of the pond and the porch. These spaces are simultaneously also spaces for daily social interactions.

Dong minority groups have a strong sense of community and prefer public life. Although their land is limited, the villagers still arranged enough space to build a system

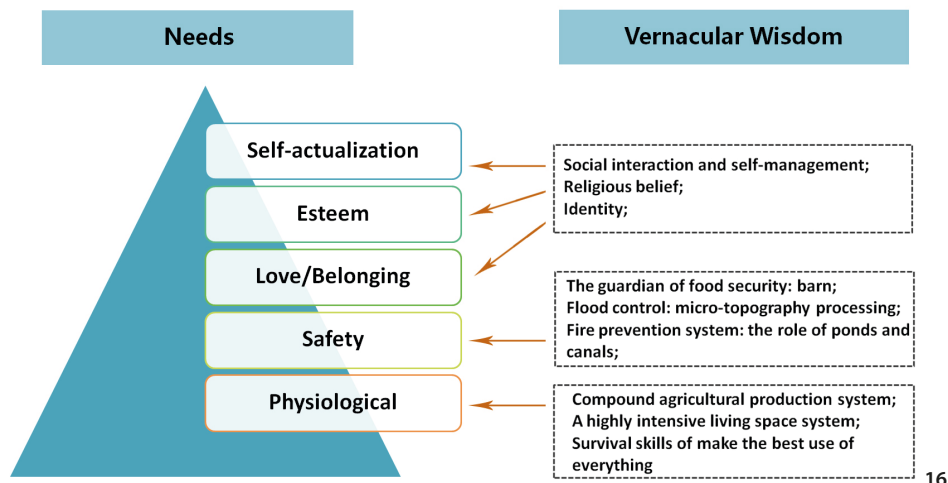


Figure 15a and 15b The Drum Tower with multiple functions and symbolism in Zengchong Village (Source: <https://www.youguizhou.net/qiandongnan/2018/0316/1432.html> and <http://gz.people.com.cn/n2/2017/0912/c371755-30721750-8.html>)

Figure 16 The vernacular wisdom of Zengchong Village met the five-level needs of Maslow's theory (Source: the authors).

for public spaces comprising the drum tower, the wind and rain bridges and the stage to meet the villagers' needs for social interaction and communication. The layout of the public spaces is centred around the drum tower, with the stage nearby and six wind and rain bridges spanning the Zengchong River, which flows around the village. The drum tower initially only served as a venue for clan deliberation and a singing club for young men and women. It later gradually became multifunctional as a place where the villagers hold meetings, gatherings, welcome celebrations, perform songs and dances. Thus, public life is highly concentrated around the drum tower. Similarly, the wind and rain bridges also combine multiple functions in addition to transportation, such as resting, meeting points, gatherings, social interactions, cooling down, recreational activities, viewing, making trades, welcoming and seeing people off, celebrations and other public space activities.

The drum tower, stage, and wind and rain bridges are places for the Zengchong villagers to exchange feelings and communicate with each other. The drum tower and stage still host celebrations during festivals and ceremonies, which not only contributes to the cohesion of the community, but is also helpful for the discussion of public affairs and the establishment of collective rules. To date, the drum tower is still a place for villagers to discuss matters, formulate township regulations and mediate civil disputes, among other major activities.

The Dong people historically used a *kuant* organisation system, which entailed a regional alliance with the village as the basic unit (Zhao and Jia 2012). The unique *kuant* and *zhailao* (i.e., a highly respected person who won the trust of other villagers) organisation systems of the Dong people became the main form of social organisation in the village. A strong sense of community was formed, which

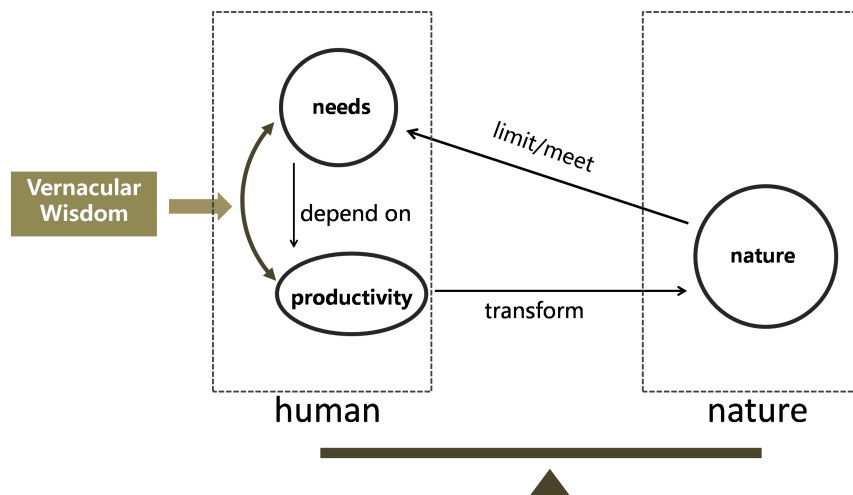


Figure 17 Vernacular wisdom is to coordinate the conflicts between human and nature (Source: the authors).

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safeguards the villagers' various interests and agreements and represents their collective interests.

Religion Beliefs

During their long-term historical development, the Dong people formed their own unique cultural beliefs. The Dong people advocate for nature and equality of life. They believe that the heavens and the Earth are spiritual; i.e., everything in nature is considered to have a spiritual energy. Forests, water sources, rice fields and people are integrated in nature. Thus, the Zengchong villagers believe that the trees, forests and the land are filled with spirits and natural energy. Therefore, in addition to the drum tower, stage, and wind and rain bridges, the Zengchong Village includes sacred spaces: i.e., the Sa altar, which is devoted to the elderly female population's worship practices by the elderly female population, and the temple of the local god of the land, which sustains the Dong people's awe and respect for nature.

Identity

Overall, the provision of sufficient public spaces with rich functions promotes the inheritance and the continuation of traditional cultural activities, such as paying for sacrifices, announcing regulations, weaving, singing songs, holding banquets for happy events or funerals, and strengthens the Dong people's collective emotions and memories. The construction of public spaces facilitates individuals' ability to express themselves in the public space, gain recognition and a sense of belonging in the collective society, and achieve psychological comfort and sublimation. The drum tower represents the Dong culture and the spiritual and cultural centre of the Dong people; i.e., the drum tower not only facilitates public communication,

but also symbolises primitive worship (Figure 15). The drum tower also virtually forms the identify and watermark of the Dong family name.

Summarising the Zengchong Village's Vernacular Wisdom

From the above analysis, we can then summarise the vernacular wisdom of Zengchong villagers into three types as follows:

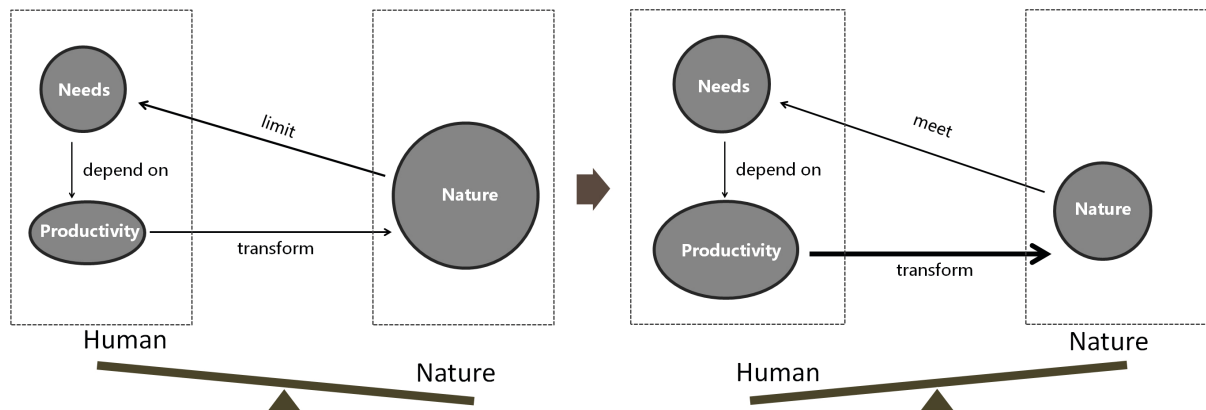
1. Wisdom for physiological needs, i.e., the compound agricultural production system, highly intensive living space system and survival skills to make the best use of everything;
2. Wisdom for security needs, i.e., the barn, fire-prevention and flood-control systems, which includes the ponds, canals and micro-topography adjustments;
3. Wisdom for self-actualisation, personal esteem and needs for love and sense of belonging, reflected in social interaction and self-management, religious belief and identity.

The vernacular wisdom illustrated above reflects how the Dong people intelligently made use of their natural environment to eliminate all kinds of natural restrictions to meet their needs for self-development in the situation of the 'weak human and strong nature' human-nature relationship in south-western Guizhou Province.

The Value and Content of Vernacular Wisdom

Vernacular Wisdom Co-ordinates Responses to the Human-Nature Conflicts in Rural Settlements

A village is a basic form of human settlement formed to meet the society's needs for survival and development,



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Figure 18 The change in the relationship between human and nature (Source: the authors)

where various production and living activities may be conducted. According to Maslow's hierarchy of needs from high to low, peoples' basic needs are physiological, security, love/belonging, esteem and self-actualisation (Maslow 1943). The analysis of Zengchong Village shows that during the creation of the settlement on the banks of Zengchong River, the natural environment provides a living environment and resources for life on the one hand, but on the other hand, it also limits their development. The ancient Zengchong villagers adapted to and transformed their natural environment at their level of productivity during that time, and in doing so, they developed a system of vernacular wisdom based on their understanding and knowledge about natural phenomena to meet their physiological, security, communication, respect and self-realisation needs (Figure 16).

In a society with different levels of productivity, humans use specific techniques and methods to make their living; thus, they form specific ways of making use of their natural environment. Pfaffenberger (1988) observed that to create and use a technology is to humanise nature. Technologies express a social vision, create powerful symbols and engages society. When a balance is achieved between human needs, productivity levels and the natural environment, the human–nature relationship is consequently balanced (Figure 17). If this balance is not achieved, however, human–nature conflicts will arise. Vernacular wisdom can then be used to co-ordinating human activities so that they are not disrupted by the natural environment.

Vernacular Wisdom from the Perspective of Human–Nature Relationships

We can summarise the contents of vernacular wisdom from the perspective of human–nature relationships, including the following aspects:

1. Vernacular wisdom co-ordinates responses to the conflict between physiological needs with the natural environment under specific productivity conditions: i.e., getting food, water, natural resources, building dwellings and basic facilities for living constitute the basic conditions for the survival of a settlement. Under low productivity conditions, the settlers experience a 'weak human, strong nature' conflict and their survival is greatly restricted by their natural environment. Therefore, the most important aspect of vernacular wisdom is how to transform the natural environment using ingenious methods to eliminate various natural restrictions and satisfy the needs of their own social development. In contrast, under higher productivity conditions, the situation of 'strong human, weak nature' also requires vernacular wisdom to co-ordinate responses to new human–nature conflicts.
2. Vernacular wisdom co-ordinates responses to the conflict between social security needs with the natural environment under specific productivity conditions: i.e., the settlement's long-term stability is guaranteed by food security, resistance to natural disasters, prevention of man-made disasters, such as enemy attacks and fire. By relying on their long-term accumulated experience and knowledge, the Dong people formed the vernacular wisdom of using the natural topography to avoid harm and thus benefit from the local conditions to achieve security and stability for their village.
3. Vernacular wisdom facilitates society's high-level needs for communication, respect and self-realisation under specific productivity conditions: i.e., when the society's physiological and security needs are met, a stable social structure, harmonious community relations, proud identity, and full self-realisation can make a settlement

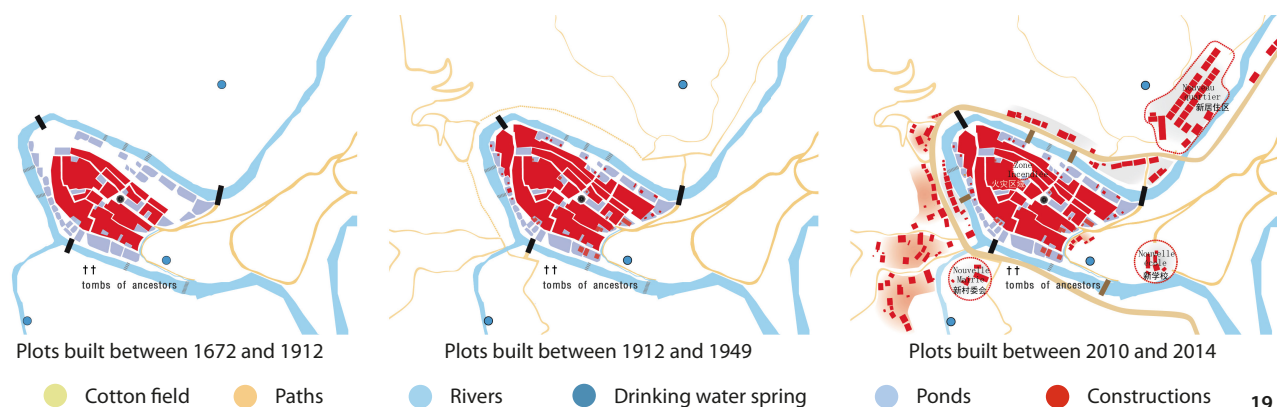


Figure 19 The development of traditional settlements in Zengchong Village and the disorderly spread of new settlements (Source: outcome of Zengchong Chinese-French Workshop)

flourish. Spontaneous or organised social interactions, beliefs and folk festivals inside and outside the settlement are all for the satisfaction of society's high-level needs, such as the needs for communication, respect and self-realisation.

Vernacular Wisdom is Central to Rural Heritage Conservation and Inheritance

In the *Charter on the Built Vernacular Heritage* (1999), the International Council of Monuments and Sites (ICOMOS) states that the 'built vernacular heritage is the fundamental expression of its relationship with its territory' and the 'vernacular embraces not only the physical form and fabric of buildings, structures and spaces, but the ways in which they are used and understood, and the traditions and the intangible associations which attach to them' (ICOMOS 1999). Thus, we can see that a village's tangible and intangible cultural heritage is often the carrier of vernacular wisdom, even though not always entirely.

Shao (2017) observed that 'heritage conservation is an integrated work' and 'the conservation should not only focus on the artificial physical heritage, but also on the natural and ecological system, the local historical culture and tradition as the origin of the physical heritage, and the local social life system forming in history'. In contrast to the previous rural heritage conservation method, which placed heritage values at the core of conservation practices and separated tangible from intangible heritage values, revealing a village's vernacular wisdom system from the perspective of its human-nature relationship is a new perspective and method for rural heritage conservation. By identifying the human-nature contradiction, this method analyses the contents of vernacular wisdom to develop the core of contemporary vernacular wisdom, which constantly explores the human-nature balance and eliminates the

opposition between conservation and development. This area requires urgent attention by researchers.

Vernacular Wisdom at the Core of Heritage Conservation and Rural Revitalisation under New Human-Nature Conflicts

New Human-Nature Conflicts in the Dong Villages of Guizhou Province

Following the changes in social needs and improvements in transforming the natural environment, social initiatives are strengthened under an anthropocentric trend to urbanisation. Human society is considered to be at the centre of the entire ecosystem; therefore, everything can be used as tools to promote human survival and development. The concept of anthropocentrism is the primary developmental idea of the industrial age, which places human societies in conflict with their natural environment.

Under this concept of urban development, societies aimed to control and dominate their natural environment instead of working hard to understand the 'laws of nature' and live in harmony with their natural environment. This idea was introduced into rural planning, where the human-nature relationship may change from 'weak human, strong nature' to 'strong human, weak nature' (Figure 18).

First, as productivity increases, societies are less likely to be constrained by their natural environment: i.e., foods can be transported from far away, household goods can be purchased online and building materials are no longer limited to the available forests on the mountain. The increase in human initiatives has weakened the role of land in producing grain for survival. Newly constructed buildings are no longer harmonious with their landscape and the barns are no longer used for their original purposes. Zengchong

Village's recent abandonment of its original settlement spaces and its sporadic development greatly wastes the village's limited land resources and increases security risks (Figure 19). Due to the incorporation of modern infrastructure, such as the integration of tap water, the villagers no longer cherish their pond and canal fire protection systems, which are now constantly blocked or stagnant. This disuse not only decreases the village's fire-prevention capacity, but also leads to chain reactions such as poor drainage and damage to the foundation of houses. In 2012, seven contiguous houses were seriously damaged due to an accidental fire caused by one of the households.

Second, despite the increase in productivity, the new demands of modern society were never met; i.e., the modern issues of infrastructure, educational resources, medical resources, public facilities, fast transportation and employment have never really been resolved in rural development. The villagers still could not live and work in peace and contentment because their demands were not met; therefore, a new imbalance appeared. The villages will naturally decline if their residents' needs are not met and rural revitalisation will be difficult to achieve.

Third, young people leave the villages to work and return home with foreign cultures, production methods and lifestyles, which creates new conflicts with the local natural environment and culture leading to subtle but significant changes in social interactions and relationships. Young people also lack a sense of identification with their local cultures and traditions, which deprives the leading role of the original religious space in the villages. Similarly, the development of tourism has occupied the symbolic public space of the drum tower; therefore, its cultural symbolism is weakened. Thus, a cultural fault line emerges with the decline of traditional vernacular wisdom and the lack of new vernacular wisdom.

The villagers historically developed a variety of localised vernacular wisdom and successfully achieved their goal of peace and happiness. However, a new vernacular wisdom needs to be developed to address these new demands and human–nature conflicts.

The Hidden Danger behind Strong Top-Down Interventions under the New Human–Nature Conflicts

Since the establishment of the first batch of traditional villages in 2012, the State has attached great importance to the protection, utilisation and development of traditional villages and has published four batches of traditional village lists. Until the announcement of the forth batch of village lists in December 2016, 426 villages in Guizhou

Province were included in the lists, comprising 16.7% of the total number of villages in China. Thus, Guizhou Province ranked second among the other provinces. In 2015, the Guizhou provincial government issued the 'Guiding Opinions on Strengthening the Conservation and Development of Traditional Villages', which was followed by the Standing Committee of the Guizhou Provincial People's Congress formulation of the 'Regulations on the Conservation and Development of Traditional Villages in Guizhou Province' in 2016. Therefore, a strong intervention mechanism was established from top to bottom in the three aspects of decision-making, funding and implementation. The state of rural heritage conservation and revitalisation is disappointing because of the lack of active participation of villagers and localised policies. Each listed traditional village in Guizhou Province has performed comprehensive environmental remediation; however, from the perspective of implementation effects, the developmental method for urbanisation, i.e., constructing domestic sewage treatment facilities in villages, proved to be ineffective.

In addition, the return on the high costs of human, financial and material resources was very low. Due to the lack of the localisation of policies under a very limited natural environment and a unique social structure, the objective needs of the villagers, such as employment, public service facilities and economic development were not met and the vernacular heritage was destroyed. Therefore, the vernacular condition of villages in Guizhou Province were polarised because of the different forces in top-down interventions: e.g., villages with large external investment show obvious overdevelopment with 'strong human, weak nature' status, such as Zhaoxing Village, which is one of the Dong people's villages. Many villages are in decline with extremely 'weak human, strong nature' status because of their lack of external intervention to support their populations.

New Vernacular Wisdom Required for the New 'Human–Nature' Conflicts

The famous British historian Arnold Toynbee once said that every civilisation is a reaction to a certain challenge. The challenge for the Romans was how to maintain their rule over the vast empire, thus a modern form of state was created. The Egyptians invented a complete irrigation system in the face of the challenges of the Nile environment and set up a political body to manage it. The question of how to deal with the new human–nature conflicts may produce a more perfect way of living but may also produce

a totally opposite result. Local vernacular wisdom can be effectively repositioned in the current architectural design and urban planning systems (Widodo 2012).

Chuanjun Wu pointed out that to coordinate the relationship between human and nature, we must first seek to maintain a relative balance in structure and function between the components of the two systems, so as to achieve an overall relative balance. Whether the human–nature relationship is co-ordinated or contradictory, it is not determined by nature, but instead by humans. Societies must take initiative to recognise and consciously follow the laws of nature so that the natural environment can be used and changed to better serve society (Wu 1991). Thus, this study proposes a method to develop a new vernacular wisdom using three aspects of the generational context of vernacular wisdom:

1. Society's need to manage its demands on the natural environment is the premise for developing contemporary vernacular wisdom. Daifu Ye observed that 'nature' in the human–nature relationship has no self-interest, but societies must pursue their interests in their natural environment. These include the different interests of survival, development, life, enjoyment, natural input and output, conquest or defeat by nature; thus, societies demand more or less from their natural environment. The tense human–nature relationship is the result of societies' material interests in their natural environment (Ye 2001). People's needs change with the changing times. Thus, the villagers' needs in the 21st century emphasises their diverse education, health care, employment, communication and self-realisation needs after their survival and security needs are met. These new needs must be well evaluated and addressed. However, the progress of modern science and technology since the 20th century has gradually expanded people's needs into the desire to possess and conquer their natural environment. Thus, a phenomenon emerges: i.e., the more developed the economy, the more serious the ecological crisis is, which threatens human survival and accelerates the alienation of human–nature relationships. Villagers often pay greater attention to the development of their individual needs and overlook collective interests because of the lack of restrictive mechanisms inside their village. The tourism industry has inundated China; therefore, tourists' satisfaction has been centralised by the society. Consequently, the tourists' demands are often indulgent, which leads to the gradual loss of the vernacular heritage of villages and traditional values. Therefore, the intelligent way of handling new human–nature conflicts

requires the assessment and management of new human needs. When basic living needs are met, societies must also learn to reject unreasonable desires by establishing consciously self-disciplined behavioural norms in the villages, such as cultural constructions, heritage education, public participation or establishing township regulations. Accordingly, a harmonious human–nature relationship can be achieved through a process of joint construction and the establishment of common governance procedures, i.e., a new vernacular wisdom.

2. Participatory planning is a method for producing contemporary vernacular wisdom. The top-down governance model has a huge driving force, but there is simultaneously a realistic possibility of power decay. A too-strong intervention from top to bottom will lead to the gradual decline of the status of vernacular wisdom with the village collective as historically the main body. Therefore, bottom-up processes need to be strengthened including: full expression of village needs, objective understanding of the constraints of village development and conflicts with development needs, choice of direction for village development, and guidance and implement of government investments. However, this kind of power forms an orderly social relationship and cultural identity through the establishment of rural rules and a self-government system, which is helpful to promote the village's collective interests and avoid the vicious cycles created by individuals in their pursuit of maximising their own interests.

These top-down and bottom-up forces can be integrated through participation in conservation and village planning. Societies cannot plan without the participation of community residents when it comes to the conservation of living heritage because the villagers are the creators, owners and current users of their heritage. Vernacular wisdom was used to create these cultural heritages and the villagers will continue to enjoy their heritage in the future (Shao and Hu, 2016). Thus, the villagers, planners, governments, non-governmental organisations and other stakeholders should participate in learning the vernacular wisdom of traditional villages. That way, we can fully understand and respect the history and culture of the village, and record and learn the special knowledge system, i.e., the village's vernacular wisdom, which has been taught for thousands of years without prejudice. Widodo (2012) noted that 'all of these can be learned, understood, adapted and appropriated, decoded and reconstructed, to enrich our inventory and vocabulary to educate future generation of scholars and

professionals'. In doing so, the inheritance and education of traditional culture can be promoted in contemporary societies. As Mangunwijaya (1988) observed, 'we had to abandon the role of being mere epigones of the architectural world of thinking and designing that was based on foreign principles and ways of life'. However, combining the planning content with the national policy can be applied in different contexts, such as law, policy, management, design, co-ordinating new human–nature contradictions and jointly exploring the ideal future of the villages. It should be emphasised that 'participatory' planning is not a one-step process, but a gradual and interactive approach.

3. The 'localisation' policy is a guarantee for the implementation of contemporary vernacular wisdom. Through participatory planning, the transformation of planning measures into effective public policies is an issue that needs to be emphasised. The localisation policy needs to include at least the following aspects: (1) greater emphasis should be placed on the establishment of a system that guarantees the basic needs of the villagers. For the development of education, medical care and infrastructure to meet the villagers' needs, we must not only be satisfied with a minimal performance, but also ensure that the supplied service is consistent with the level of services in the cities; (2) the design and construction of municipal facilities, such as infrastructure, sanitation, disaster-prevention and road traffic facilities, should reflect the area's local characteristics without destroying its original heritage; (3) the protection and reconstruction of public spaces and religious sites should be based on the respect for the village's historical culture and local traditions; therefore, the massive construction demands for tourism-related infrastructure can be avoided. Finally, the modes of financial allocation and operations must necessarily be changed to ensure the establishment of a stable financial system for the villages. Thus, the villages may avoid complete dependency on special funds for piecemeal construction and participate in an integral rural conservation, development and construction system. By establishing a co-ordination mechanism for each stakeholder, i.e., the government, villagers, and external forces, to work together, a new approach focusing on diversity and localisation can be formed to combine the top-down and bottom-up methods to achieve rural heritage conservation and rejuvenation.

Conclusions

Although the traditional vernacular wisdom that we have observed and analysed in the case of Zengchong Village still plays a very important role in dealing with traditional human–nature relationships, its performance is not perfect and must change in accordance with the village's changing socio-economic background. Similarly, Maslow's hierarchy of needs also has certain limitations because human needs develop alongside socio-economic developments. The main feature of vernacular heritage has traditionally been its interactions with the context of its natural environment and its constant adaptations to solve human–nature contradictions. Therefore, reviewing the current vernacular wisdom of the Dong villages in Guizhou Province goes beyond analysing their historico-cultural values. This study does not intend to copy the traditional vernacular wisdom for use as contemporary vernacular wisdom. Instead, we aim to appeal to our society to treat our valuable natural and cultural resources better and encourage the search for new management methods to meet the various needs that arise from the new human–nature contradictions. Thus, we can explore the use of contemporary vernacular wisdom for the sustainable development of rural heritage in future.

Notes

1. The Chinese State proposed the rural revitalisation strategy in the reports of the 19th National Congress of the Communist Party of China in 2017, and announced the Central No. 1 document 'Opinions of the CPC Central Committee and State Council on Implementing the Rural Revitalisation Strategy' in January 2018, which increased the rural comprehensively revitalisation, integrated urban and rural development and harmonious coexistence between humans and nature to an unprecedented high level.
2. Since 2010, the traditional villages in Guizhou Province have gradually gained attention, and various development models have emerged. For example, Zhaoxing Dong Village is a large-scale tourism development model supported by the government and the World Bank. The Dimen and Tangan Dong villages are ecological museum models. These development modes are all involved with variety of external forces which changed the original mechanism of the village. Zengchong Village always maintains a state of self-sustainability without too much outer intervention and becomes a perfect object that has not been 'experimented' and can be observed.

3. From 2014 to 2015, the College of Architecture and Urban Planning of Tongji University in China and the École de Chaillot in France conducted a one-year Chinese-French Workshop in architecture and urban and rural heritage preservation in Zengchong village. During the workshop, the tradition and current issues of Zengchong Village were investigated and analysed in-depth and formed a common design outcome. Some of the outcomes are cited in this article. The Chinese instructors of the Chinese-French workshop are Yong Shao and Peng Zhang. The French instructors of the Chinese-French workshop are Benjamin Mouton, Luc Savonat and Françoise Ged. The Chinese students are Zixiang Cui, Jiawei Jiang, Mengwei Liu, Xinfei Sun, Fangzhou Tian, Xiucheng Tang, Jing Xin, Kanda Xu, Haibin Zhang, Le Zhang and Hui Zhi. The French students are: Soizik Bechetoille, Thomas Buzy, Véronique Canas Da Silva, Paul Dubois, Thomas Floch, Tiffanie Le Dantec, Simon Leuckx, Elisa Querub and Jean-Paul Philippon.

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