Urban Panorama Tourism Planning A View From River Tour Course In Post-Three Gorges Era

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Abstract

■ The upstream cities of Yangtze River have been witnessing significant transforming since the beginning of the construction of the Three Gorges hydroelectric planet project. Chongqing Port Authority had its opportunity to alternate the river tourism strategy from being the upstream terminal of the golden route into creating a particular cruise course towards perceiving the panorama of continuous elevation of mountainous city, at the same time, promoting the renovation of the urban design so as to revival the typical mountain-river vista. This paper bases on the panoramic research of Chongqing peninsula; discusses the characteristic aspects of the three-dimension sightseeing of the mountainous city on the cruise route, which widely exists in the Three Gorges region as well. And this method is different from the two dimensional approach of skyline analysis which is more suitable for the topographic area. The achieved work can offer the tourism-related sectors a sustainable assistance to deal with “tourbanism” topics in the urban regeneration process in the Three Gorges regions.

Key words:

Post-Three Gorges Era, Three Gorges Reservoir Area, Tourism Planning, Chongqing, Urban Panorama

Introduction

■ The Three Gorges cruise route has been absorbing highly attentions in the tourism industry of China since the beginning of last century with its name honoured as the Three Gorges Golden Tourism Belt, which offers the direct and indirect influences on the optimization of the city characteristic and the regional development. The construction of Three Gorges Hydropower Planet brought this upstream region of Yangtze River into the current hotspot all over the world in many scientific areas which cover the regional science, the environmental science, the historical heritage, the urban planning and the tourism planning. On the 50 thousand square meters in total which include river and riverbank areas, close to 1 million habitants have been experienced the migration due to the

risen up water level of the reservoir which caused that the cities and settlements locating under the reserved water line were flooded completely. 13 middle-size cities with a population over 30 thousands were relocated and re-planed and it formed today's new Three Gorges Golden Tourism Belt in so-called the post-Three Gorges era. The preserved tourism route continues its great value of economy and culture broadcasting to help the development of the Three Gorges region.

The post-three Gorges era

■ The Three Gorges reservoir area in China stepped into the so called post-Three Gorges era after 2009 in which year the construction of the dam was completed and the water reserving capacity reached its design amount in the Three Gorges Project. The Three Gorges Hydropower Planet (Figure 01) also named the Three Gorges Dam, spans the Yangtze River in Yiling District of city Yichang, Hubei Province. The body of the dam architecture was finished in 2006 and it adopted a kind of gorge-type reservoir by using the water resource of Yangtze River and its tributaries, which means the river was cut-off at the position of the dam and a piece of around 436 km long section of the river before the dam became the water reservoir area of the hydropower planet. Until July 4th 2008, the water level of the upstream side of the dam had risen from 98 m up to 172.8 m, with the reservoir area reaching its size of 632 km2 up to Chongqing. The riverbanks of this area cross 20 cities which locate in Chongqing Municipality and Hubei Province.

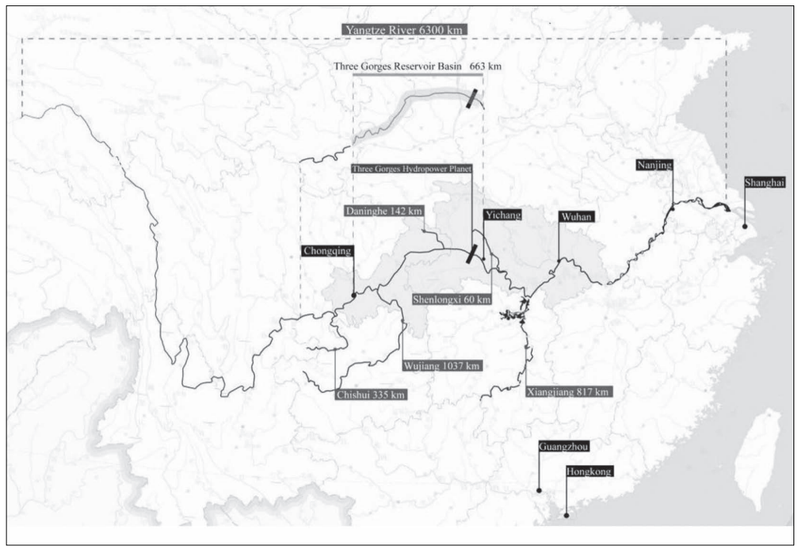


Fig.01 the geometric condition of the Yangtze River

The transformation in the three Gorges reservoir area due to the built of the three Gorges project

■ *The re-planning of the cruise route*

The Three Gorges basin of Yangtze River is an area which received its name from the three well-known nature gorges on both sides of the river. The section of Yangtze River inside of the region is the only water connection between the Ba Shu Basin and the eastern part of China. The built of the Three Gorges Dam which locates at the eastern top of the basin rose up the water level of the rivers inside of the whole Three Gorges basin. So the sailing capacities (Figure 02) of Yangtze River and its tributaries Jialing River, Wu River were levelled up from 3000 tones to 10000 tones and 300 tones to 1000 tones respectively. Other tributaries of Yangtze River can offer the accessibility of the river cruise after the heighten water line of the reservoir, which were not even existed before the construction of the dam. In other words, the amount of the river cruise route is grammatically increased from the past-Three Gorges era to the post-Three Gorges era because of the bigger sailing capacity mainly created by the up-risen water line of the river.

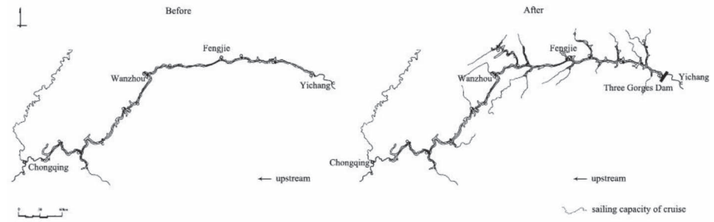


Fig.02 sailing capacity of the Yangtze River and its tributaries (Adapted and modified from The Research of Sustainable Human Settlements Construction in the Three Gorges Project of China, 1999)

In the mean while, the period when the sailing experience of struggling with turbulent rivers and treacherous shoals due to the narrow and shallow Yangtze water course of Three Gorges basin suffered from the disadvantages in the aspects of navigation safety affected by the submerged reef, traffic control because of the narrow width of the water course, the extra fuel consumption caused by the flow rate in the gorges, etc has gone into the past. All those adverse conditions got largely improved and even completely avoided after the built of the Three Gorges Project because of the larger width (Figure 03) and depth of the river. Basically speaking, the cruise industry could receive great amount of the economic and travel benefit directly from the re-planning of the river sailing routes in the post-Three Gorges era.

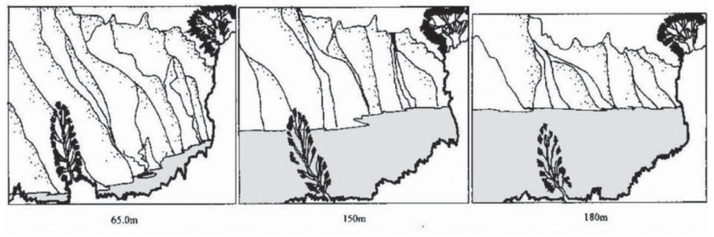


Fig.03 the rising water level in Jiandao Valley with numbers which are water heights above sea (Adapted from The Research of Sustainable Human Settlements Construction in the Three Gorges Project of China, 1999)

The re-planned river paths of cruise in the Three Gorges basin in the post-Three Gorges era received its enormous transformation on the quantity and quality. The new developed routes in the tributaries of Yangtze River together with the Yangtze River classical cruise line itself formed the richness of the new cruise network in the Three Gorges basin with the aim to produce more opportunities and longer trip to experience the scene of the rivers and its both sides from the sailing cruises.

The re-planning of the riverbank city

The riverbank cities in the Three Gorges reservoir area acquired its benefits from the up-risen water level which leads to decrease the distance between the urban area and the river front in the post-Three Gorges era. One of the advantages is that a larger part of the urban area together with the background mountain in most of the cases could enter into the view range (Figure 04) of the observer in the cruise shipping on the river with the new water level. And the lifted water line becoming closer or even entering to the urban boundary increased the limitation of the area of the buffering zone which locates between the urban area and the river.

Fig 04 the distance between the urban area and the river front (Adapted and modified from The Research of Sustainable Human Settlements Construction in the Three Gorges Project of China, 1999)

Cities in the Three Gorges region mostly are built on the intersection point of the Yangtze River and its tributary with the advantages of river transporting hub. The main tributary going to the Yangtze River ends with a large city, the little river and the stream respectively ends with a small scale city and a town. The city easily grows linear and keeps a strip shape because the settlements and expansions normally are attached to the river due to the convenience of transporting. The construction of the Three Gorges Project upgrades the series of river front cities which locate in the Three Gorges basin with the help of the levelled up navigation capacity. The classification of the city is promoted from having the initial function of the strategically logistic and transferring base in the war period to nowadays obtaining multiple functional development models hybridising modern logistics, agriculture, mineral development, hydropower resource and tourism together.

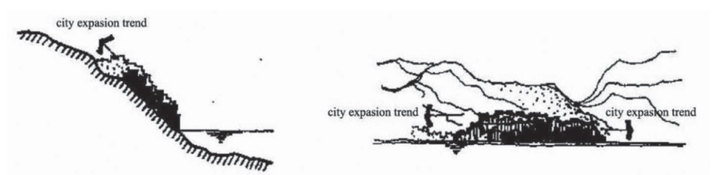


Fig. 05 the expansion trend of the urban area (Adapted from The Research of Sustainable Human Settlements Construction in the Three Gorges Project of China, 1999)

In the post-Three Gorges era, the relatively large city shares the due-centre or multi-centre model which has the vertical and horizontal expansion (Figure 05) under the assistance of the express infrastructures connecting the sub-centres efficiently. And the small cities and villages maintain their advantage of linear shape or L shape parallel to the water line which can receive maximum benefits from the river. The extended urban area attached the riverside lengthened the view of the waterfront city structure (Figure 06).

The re-planning of the riverbank city follows the classic strategies of the urban expansion for the development of the riverfront city which fortunately in the mean while promote the vision accessibility and continuity of the scene of the urban area from the observation point on the river.

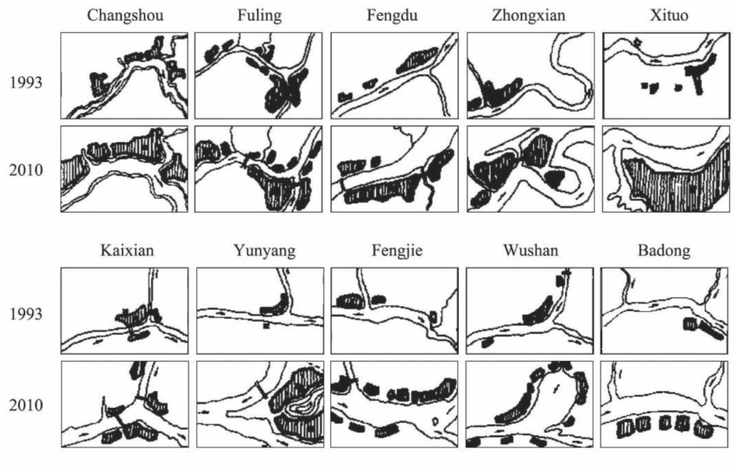


Fig.06 the expansion of the relocated city (Adapted and modified from The Research of Sustainable Human Settlements Construction in the Three Gorges Project of China, 1999)

Urban panorama, the new approach to improve the impression of the city

■ In the post-Three Gorges era, cities locating in the Three Gorges reservoir area are facing a new chance and challenge to rebuild or regeneration the urban structure which can fit the new geometric condition and the economic environment. The Three Gorges tourism on one hand inherits its former cruise line as its traditional river travelling route to maintain the classical Three Gorges Sailing; on the other hand it creates a series of new sub-routes which promote the cruise tourism in this region onto a higher level. The cities in the Three Gorges reservoir area start to pay highly attention to the benefits received from the cruise tourism, in which the most adapted movement is to rebuild the city impression that can be obtained by the tourists from the cruises. Cities in the Three Gorges region share many of commons in their urban forms mainly because of the similarity of the topographic environment, the artificial reform of the nature condition between the river and the mountain. And Chongqing as the biggest and most important city in the region which contains most of the topographic situations and the largest building density would be the valuable analysis case to discuss and demonstrate its complexity of the urban structure with an aim to discover an inventive approach which can optimize the city impression and the tourism attraction on the Three Gorges river course.

Fig. 07 photo of Centre Chongqing Peninsular, taken from the top of the South Mountain, 2010 (Adapted from wikipedia Chongqing)

So take Chongqing as an example, the old city centre (Figure 07) is located in the intersection of Jialing River and Yangtze River, the rest new part of the city forms as stripes, going parallel and attached to the river. And the body of the town generally is located on an embarrassing step land which is few meters above the river water surface level (5 meters in the case of the old city centre of Chongqing); the rest part of the city should get risk of the up to 25% inclination to build the new sectors. The extremely limited flat land is the main reason of the high building density of Chongqing and rest of the cities in the Three Gorges region.

The physical form of the built area of Chongqing is like a new skin growing on the mountains, which follows the topography condition of the nature. The various building levels, the interactive open spaces, the dynamic transportation facilities increase the interests of space experience. Although the complexity of the geography decrease the progress and flexibility of the construction which causes the uneven development and fragmentation of urban planning, the unique character which reveals the harmony of artificial and nature is more obvious and special. The same happens to all the cities in the Three Gorges region, and the slope inclination ranges from 15% to 80% in different area, which proves one Chinese saying: mountains look like cities and cities look like mountains (the mountain and city are staying as one unique body). The method to assist the urban regeneration with the aim to optimize the city impression from the river sailing route can be build as a model (take Chongqing as the object again) basing on the analysis of the sight and view, which is used in the urban design process. The following is an account of our attempts to analyze and evaluate the virtual impression in order to create our assistant model.

Procedure 1: analysis of the cruise route from the plan

The geographic location of Chongqing offers its territory a typical intersection of city-river-city-river-city distribution. The peninsular surrounded by two rivers is where the city centre locating, and it is famous for its skyline which can be observed from the cruise tour on the river. Apart from the traditional cruise route of the Three Gorges region, the sub-route called “Liangjiang Sailing” (two rivers sailing) (Figure 08) is a popular cruise course in Chongqing as well. The route starts from the north terminal which is sited under the Jialing River Bridge, goes along the Jialing River passing the intersection point with Yangtze River where locates the Port Chaotianmen, and then turns south into the Yangtze River until reaching the Yangtze River Bridge, with a total length of 10 kilometers.

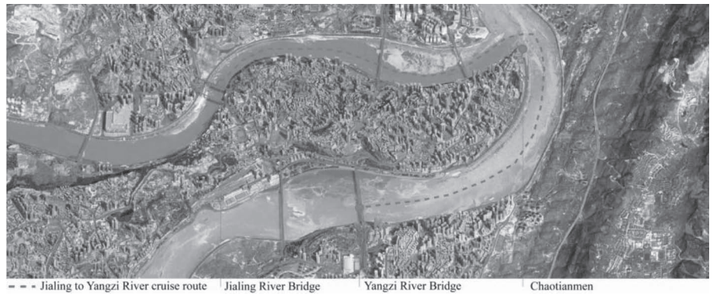


Fig. 08 satellite photo of centre Chongqing peninsular and part of the cruise route

The images and memories of the city are usually received by the visitors in a way of fragmentation which includes passing through its open spaces or staying on a point of a certain place (a terrace, a square, a building roof, etc.). However, the city viewing from the river cruise, on one hand can keep a close distant from the scenery object in order to receive the image with great amount of details, on the other hand, the picturesque view can get a moving feature which is like the unfolding of a long scroll painting of the city from a view point on the river surface with its low sea level height. In other words, if the pictures shoot during experiencing inside of the context of the city seem like the collages, the continuous view from the traveling on the river can be seen as a piece of continuous image which expresses the mountain city character from the outside.

This moment of experiencing can not be found only in Chongqing, it exists in the group of urban areas locating in the 600 kilometers river course all along the Three Gorges region of Yangtze River. And the very first impression of these cities in which way can be received most directly and completely is the way entering by river.

Procedure 2: analysis of the vision which receive on the cruise route

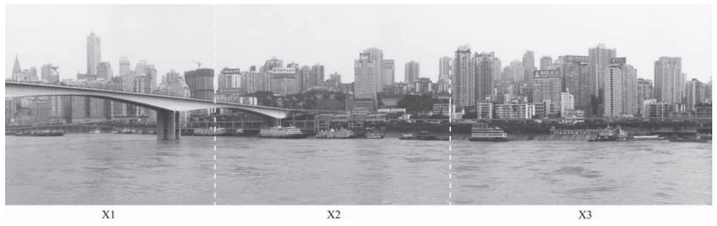


Fig. 09 image of centre Chongqing Jialing River elevation, taken from the platform of river cruise

The photograph above is the image of centre Chongqing Jialing River elevation (Figure 09), taken from the platform of river cruise. And the picture taken by the camera can be recognized relevantly equal to the scene which can be received by people's eyes at a specific moment in the latitude of the middle of the river.

Left part of the image, X1 section, demonstrates a clear bi-relationship which is built only between the high-density buildings and the river surface, with the linear overhanging express way as the dividing line. The columns of the express way go straight into the river water. The image reading of the characteristic of part of the city as X1 section like is simply shaped by the building elevation and the city skyline. The short distant between the high-rise building group and the river front and the high built density cut off the possibility to get the view of the city in a tri-dimensional and solid awareness. When we go to the middle part of the image, the section X2, thanks to the low-density and un-occupied river front, the topographic condition like the slopes and the step lands can be clearly seen at the height of the observing point on the river surface. Compare to the two dimension impression in section X1, here in section X2, the image with the depth of field displays the city with various stages of buildings and greens from close to far: the water front single residential building, the mountain top low-rise houses and the high-rise commercial building in the background. The impression of the urban elevation breaks the limitation of two dimension flat picture view, having the quality of layers in different distance to the observer. In the left part of the image, the X3 section, the river front building keep a low height (seven floors) in common which do not block the

view accessibility to the building behind like what happens in section X1. In the central part of this section, same height low-rise buildings locating in the middle and peak area of the mountain actually represent the geometric shape of the mountain; buildings on the lower contour line would not keep out the elevation of buildings on the higher one. The view corridor following the rising trend of the roofs which is shaped out by the high-rise building on each side creates a even sharp perspective in depth from the lower river front to the top of the mountain.

Procedure 3: the method to form the basic research model

The analysis of the case of Chongqing above can be introduced to the cities in the Three Gorges region because of the similarity of the geometric conditions. The urban structures, no mater the city in large or small scale, can be clearly identified from the observation position on the river course: the old districts, the commercial centres, the residential areas, the industrial zones, the urban parks, the large infrastructures, as well the built density, the construction rate, the levels of the building. The experience of the reading of the city's vertical face, the city elevation, become one of the strongest impression of the cruise trip in the Three Gorges river course.

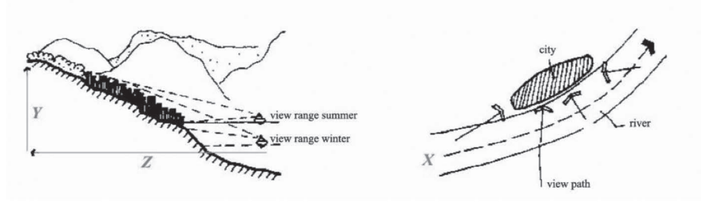


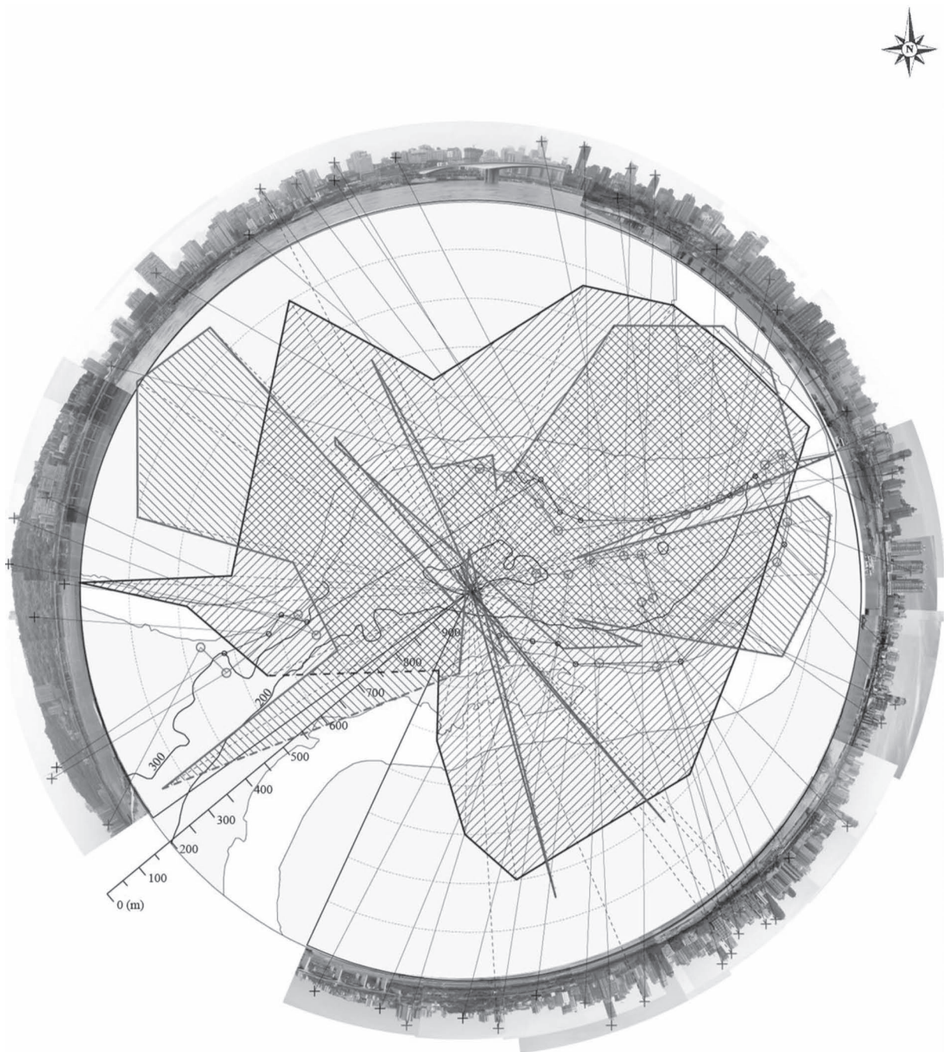
Fig. 10 view of elevation and view path for the composition of urban panorama

Based on the analysis of the scenery research of the cities in the Three Gorges region, we build up a basic model (Figure 10): under both preconditions of fixing the distance between the observer and the object (at the middle point of the width of the river in our case) and scene vertical range (the vertical sight range of the eyes) in order to get the image with a regulate size in Y direction (the height); in the Three Gorges region, the appearance of the river extends the X direction of the city image (the length of the cruise route); the topographical condition of the mountain give the Z direction to the city image which offers the depth of the view. Composing three directions factors together can finally constructs the three-dimension city image with a completely revision of the urban structure, with its name Urban Panorama.

Procedure 4: the method to form the complete urban panorama model

After the setting up of the urban panorama model, we combined the plan and section in one drawing which is used to demonstrated the definition more clearly and practically. The following is the manual order. 1, take the peninsular of centre Chongqing as the research object again, make a collage of the continuous image of the city elevation with the photos shot from the cruise shipping on a certain sailing route; 2, use the arc tool in the software Photoshop in order to make the collage into a circle and load the plan of the referring cruise route inside of the circle; 3, select around 20 architecture elevations and 20 green surfaces which attract more attention of the observer; 4, use the geometric information system to get the exact position of the chosen surfaces, mark the relative place on the plan, measure the distance between the position of the surface and the point which is projected on the centre axis of the river by the surface; 5, represent number of the distance measured before on the diameter line which connects the centre of the surface with the centre of the image circle, link the points into two folded lines standing for the architecture and nature separately; 6, link the position points on the plan to archive two folded lines as well. And in the end, the following diagram is the result which we can achieve after the procedures.

There are two systems inside of this model: one represents the visual analysis of the collage image which simulates the view obtained on the river with reference of the position and the elevation of the selected surface; the other one is the comparing of the distance which actually equal to the measurement of the axis Z. According to this diagram, we can clearly receive the information which shows the accessibility and the depth of the sight, the function of the highest point in the image to balance the proportion of the whole drawing, the front and back relationship among the architectures and the greens and at last, the situation of the invisible area. Honestly we can not avoid of the limitation of our analysis caused by the amount of the selected surfaces which can not represent every surface existing on the image circle. However, we arrive on a relatively precise level which expresses our idea of using urban panorama method to analyze the urban contracture viewed from the river.



loading surface of the sight

invisible zone

loading surface location on the plan

land area

nature surface

building surface

200 distance from river centre axis to the loading surface (Z value)

Conclusion

■ In the contemporary society, the tourism represents one of the most dynamic economic sectors, which registers permanent exchanges and an ascendant evolution (Minciu, 2005). Chongqing is about to become one of the most important touring destinations in the Three Gorges reservoir area, it could adapt the strategy of promoting its city impression in order to receive the lasting and secure effects from cruise tourism. Economically, the tourism can be seen as a main source of the recovery of regional economies of those districts that have rich touring resources. Chongqing and Three Gorges' Scenic Spot have a remarkable potential of touring development, joining the elements of natural frame with cultural and historic values, especially their characteristics in mountainous cities.

This paper has demonstrated that Urban Panorama can operate recommendations subscribed by the Urban Design Guidelines. For example, the government of Chongqing has identified some viewpoints for the presentation of view corridors to important peaks and green areas given a strong appeal from the public to heighten protection of views to the ridgelines and urban open space. Our study has shown that the urban panorama which includes the city's image, the most important is how to decode these series images by a scientific analysis which can receive a refinement using terrestrial data collection. The evaluation of the terrestrial data can be simplified considerably by integrating these existing buildings and geographic element. Adopting this Urban Panorama model in the urban research of Three Gorges reservoir, we expect build a urban panorama database for those waterside-mountainous cities to find a readability structural model when we face the extremely complex urban images, meanwhile, the city builder also have a new approach to evaluate the strength of the development of urban design and tourism planning strategies.

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