DISCUSSION PAPER SERIES

Study on the Application Principle and Current Situation of 'Conservation First and Development Afterward' on Jeju Island

- Emphasis on problems of landscape damage -

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February 2011

RPSPP Discussion Paper No.19

RPSPP

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Ⅰ. Background & Purpose of the Study

Jeju Island is the largest island of Korea located south to the peninsula and leading resort and tourist destination that has been developed. Mt. Halla (1950m high), the highest mountain in S. Korea, stands in the center of the island and has beautiful scenery designated as World Natural Heritage by UNESCO (Picture 1).

However, the island has been substantially developed due to its beauty for the purposes of tourism and residential improvement. Consequently there have been damage to natural scenery and frequent occurrence of disasters causing a number of problems.

The typhoon "Nari" taught us a number of lessons in 2007. It was a good example that revealed the substantial influence of the result of the development-driven policy to all of us. In retrospect, policies of Korea had concentrated on development, and Jeju Province was not an exception. Its urban planning, housing policy as well as tourism policy had focused on development. Furthermore, it had even loosened controls on height of buildings and requirements of districts of large-scale

Picture 1. Location of Jeju Island

projects to attract foreign direct investment with little regard for its environment and scenery. As a result, they had caused controversy over special favor and damage to environment and landscape. The typhoon "Nari," however, have changed its people's perspective and caused new change in the development-driven policy since 2007.

Development cannot be thoughtless for the environment and is to create a convenient and comfortable environment; thus, we should not take only economic factors into consideration as if automobiles cannot be valued more than human beings. People should be considered first because they are the ones who live in developed space; therefore, nature and people should be the main issue when development is planned.

This study is to organize these environment and development problems and suggest the fundamental application principle of 'conservation first and development afterward' by discovering problems and measures through the environmental simulation of the Ropeway that was one of major issues in the local community.

Ⅱ. Main Subject

1. Types of development thoughtless for the environment on Jeju Island

The beautiful island of Jeju has constantly changed itself. A number of projects in limited space during the short period of time cause side effects. 'Development thoughtless for the environment' haunts governors and mayors of local governments. They have to develop their districts to improve the society. They will construct roads, perform town planning, develop residential land and build cultural facilities to meet their people's demands when these are necessary. As for the natural environment, these activities are just a series of destruction of nature. The issue is to come up with the development type that is substantially effective and rational.

'Development thoughtless for the environment' means the development that results in occurrence of natural disasters and damage to the residential environment although it follows law and regulations

and does not intend to cause those problems. Everything cannot work well according to law. Law is just guidelines that suggest the minimum number of conditions.

Picture 2. Aerial view on the Sci. Complex

Troublesome development are performed in an irresponsible and indeed various manner. The most typical type is 'Scrape and Built' that literally clears out almost everything at the site, builds new buildings and plants new trees with no regard for environmental conditions of the site. (Picture 2). There must be some sorts of a trace from the past at a site even on meadows that are turned to the residental area such as paths, stone fences and old trees. When these are wiped out, and buildings are built, the beautiful landscape of Jeju disappears, and the prestigious city with the coexistence of the present and past cannot exist any longer.

Picture 3. Big-scale residential cluster complex That does not fit for Jeju

The second type is 'Big Scale' (Picture 3). A number of people has the obsession that they should build as many as posible at a large site. In particular, developers will develop as wide and high as possible in order to make profit as much as they can from limited space. They prefer their maximized profit to the living environment and landscape of a city. This applies not only to them but also to administrative agencies that are to place an order for public bulidings.

The third type is 'Reclaim and Cover' that covers dried-up stream and fills seas. The streams are covered to make parking lots, and the seas are reclaimed to provide residents with places to relax. Consequently the seas cannot be seen, and the streams place under the ground. This thoughtless type of development repeats that miserable result.

The fourth type is 'Unbalance' that is caused by building new high-rise buildings and commercial buildings in the area for the residential district with the low density in the first place. It is not surprising to know that its residents distrust the construction and municipal administration. When urban planning is established, it should be implemented with caution and consistency.

2. Current Situation of Viewscape & Landscape

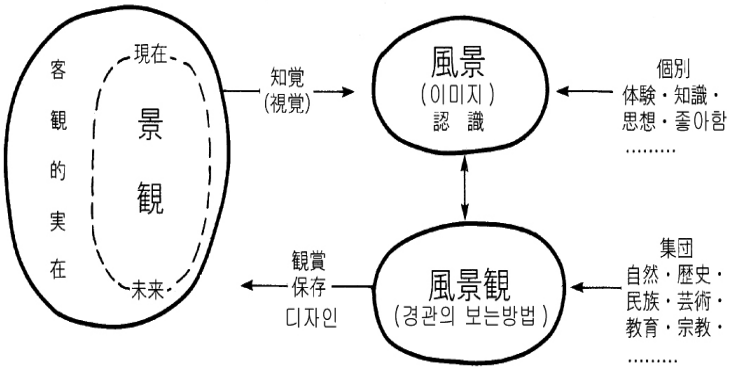
2-1. Meaning of Viewscape and Perspective to view Jeju - landscape . viewscape -

1) Landscape & Landscape Perspective, and Meaning of viewscape

Human beings sense the object with shape, color, texture and so on reflected on eyesight as a scene or a viewscape and recognize it as an image focusing on their own life experience, memory, thoughts and knowledge, and preference, which is called 'a landscape'. Thus, even on the same object, each person has each different perspective and their own preference and non-preference, resulting in a big difference of the recognized substance. The image of landscape has been shaped by being memorized and repeatedly combined.

The landscape accepted from the personal view has had the region's own way to look at the landscape through the historical and religious symbolization demanded from groups, peoples and regions, the adoration from paintings, the value development by scientific understanding, and the production by tourism, which is called a landscape perspective.

This perspective is seen as a existential shape based on the common value, that is, it recognizes as a object the geographical condition or the historical and cultural environment such as climate, topography, land usage, village, downtown, and lifestyle of people and so on, which is called a scene(picture4). It means, the concept of a scene is rather than the substantial one as an environment, an image shaped when an observer views it from a certain distance.



Picture 4. Recognition of landscape and scene (source : MImura Hiroshi(1997) Urban Planning for Coexistence in Community, Gakugeisha Publishing)

2) Kind of Viewscape

When a scene or a viewscape is divided into natural one and artificial one by whether it has artificial aspects or not, the cityscape belongs to the artificial scene. That is, a city is the external environment or man-made environment to surround us influencing our sense and sensibility during from the morning to even sleeping, and at the same time, the cityscape is the spatial embodiment to permeate lifestyle, custom and common value as well as to reflect the cultural standards and characters of residents in general. These cityscape are categorized into residential site-scape, commercial site-scape, and street-scape according to the regional characteristics(features) and also divided into townscape and urbanscape according to perspectives.

① Townscape

It means a city's scenary, the traditional concept on cityscape, defining the visually sensed city as the formal beauty including all city structures, space arrangement, shape, structure, appearance, and atmosphere and so on, based on the recognition of a city as the object of human eyesight. The concept defines the city environment as the visual object, the city scenary as the prospect scene, and disregards the process to form the cityscape and the social and cultural background.

② Urbanscape

Amid the human and the environmental development, the urbanscape is the concept developed corresponding to the townscape, that is, the concept to comprehensively grasp the city focusing on the environment rather than the human. The urbanscape is the perspective, beyond simply visual scenes, to understand the relation between human beings and the urbanscape.

That is, the concept of urbanscape contains the visible scenary such as natural materials and artificial counterparts as well as the invisible domains such as the atmosphere reflecting city activities and citizens' activities, and the psychological environment.

Picture 5. Whole view of Jeju City from the sea and the distant view of Mt. Halla (source: Jejusi Promotion Department)

3) Perspective to view Jeju -landscape and viewscape-

Architecture and city are the collaborative embodiment as well as the historical product, reflecting the social change factors in a certain period, all sorts of regional conditions and the contemporary people's life, through their structural and spatial function. It is Jeju that expresses these sense of place and history well. Due to the limited personnel and goods trade and typical oceanic climate caused by the geographical feature, Jeju people's life itself is too much different from that in the mainland.

Picture 6. Unique scenary of a Jeju village with Mt. Halla on its background (source: Jejudo(1996), 「Jeju 100 Years：50th anniversary picture collection of the provincial elevation」)

Jeju-like life permeates the architectural style. Basically Jeju's traditional architecture has the distant view with the peak of Halla mountain and the horizontal line (Picture 5), the middle view with a cluster of villages under the Halla mountain (Picture 6), and the near view in the fence of the house, showing the gentle curve and the tall fence.

Architecture and city, however, have to change as the times, lifestyle, and the common values of the people in certain generation change. Changed or changing according to the periodic and political situation, Jeju island and Jeju people has had two contrasting sides: Jeju architecture with

Picture 7. Change around Samseonghyeol (left: 1968, right: 1990s) (source： Jeju city (1994), '40-year urban planning history')

the strong sense of history and place; the change in city(village) and the introduction of modern architecture and city space. In particular, When designing the basic urban planning, Jeju government didn't set up the urban planning to reflect the indigenous scenic assets, but just comply to the guidelins from the central government. As a result, the unique village landscape and scene disappeared and the places fro cultural assets were gradually lost, replaced with the ordinary buildings smelling commercial capital(picture 7).

2-2 Current Situation of Viewscape: Necessity of Conversion of Civil Engineering-Driven Development into Humans and Environment-Valued One

We should not forget that we need to consider human beings and nature and the coexistence and harmony of the two when we create cultural scenery of our city. However, modern urban planning created extremely simple and uniform city space by building high-rise buildings and equally situated roads in a large green area. Its city had the substantially functional and productive structure, but it is now harshly criticized due to its intolerance to include activities of living things called "human beings" and features of the natural environment. That is the reason why "New Urbanism" and "Human Settlements" receive attention these days. The condition for "Human Settlements" is to pursue the city with human-friendliness and implementing measures of urban planning. For example, they are 1) the city structure for walking, 2) workplace, residence and relaxation in the same area, 3) construction of houses for various classes, 4) construction of medium-and-low-rise buildings with high density of residence and offices, and 5) aim for traditional forms with traditional materials as well as placement of squares and stores in the center of its town.

The ultimate goal of the New Urbanism, however, is related to eco towns and safe cities. In order to implement the goal, the essential measures should include, first, the enhancement of the minimum area for residential land partition of the urban planning ordinance and enhancement of management by establishing a management guide to residential land partition or enhancement through the floor area ratio and building-to-land ratio. Second, it is necessary to induce development with low density through the enhancement of restrictions on height of buildings of the urban planning

ordinance because this is one of appropriate measures that prevent high population density, residential land development and erosion of green space. Third, it is also necessary to connect footpaths and bike roads with the green axis establishment project by building appropriate roads, establishment of parks and consistent function of streams. Present rearrangement planning of streams focuses on drain function rather than harmony of human beings and water space and does not lead to the eco environment and establishment of scenery. The active usage of rain including stream rearrangement is one of the important measures.

Problems of urban landscape planning of Jeju until now are incompleteness of systems, lack of expertise of public officials and organizations of administrative agencies, lack of cultural mind of citizens, and lack of responsibility of city and construction workers. In particular, other problems are lack of clear goal-oriented mind about formation of landscape, introduction of administration-driven systems, and inconsistency caused by separate planning of different cities and counties. Landscape planning has jus included simple environment improvement, natural landscape conservation and other similar measures.

Accordingly as for landscape that fits for Jeju, its formation is not an important factor, but it is essential to find features of Jeju in terms of space. For example, the system of paths of a traditional Jeju village, cluster relation of houses, and field and system of inner space of a house are good ones. Landscape that fits for Jeju would include elements of Jeju's daily life space and spatial mind of its people and application through new interpretation of them in terms of urban and architectural space and formation. In addition, it would be a great measure to set new directions by applying to residential land development and inducing problems through establishment of pilot districts.

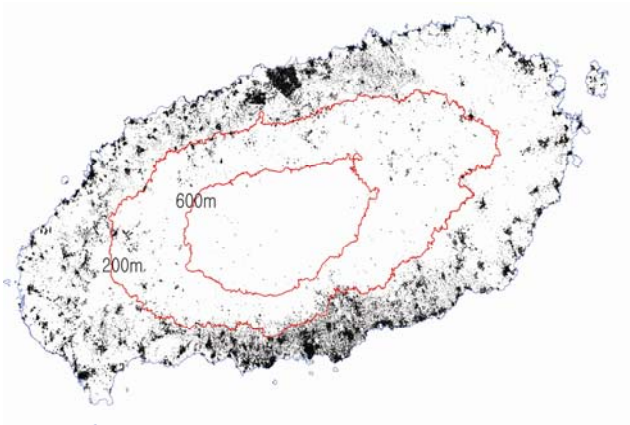
2-3. Current Situation of Landscape: Development of Hilly and Mountainous Areas & Damage to Landscape

There are a number of unique names of natural features in Jeju including "oreum," "gokjawoal," "jungsangan" and "geoncheon." These were named because Jeju is a volcanic island, and they have important meaning along with their unique geographical and geological features. In particular,

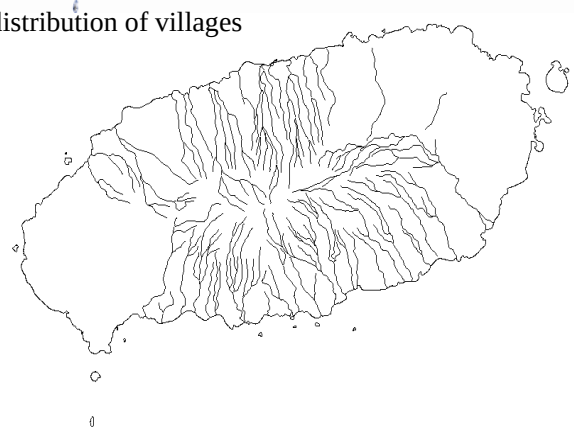
"jungsangan (中山間)" that is the hilly and mountainous region ranged from 200m to 600m for the sea level has substantial importance in terms of ecology and landscape (Picture 8). As for its ecological part, the region has controls on the flow of pouring rain because it is located at the midstream of the rivers (Picture 9). In addition, it almost performs a role of lungs of the island providing urban space with a decent environment since it is located between the national park and urban area and relatively well reserved. As for its landscape part, it has its importance by its backdrop scenery or landscape since it is located among Mt. Halla, seas, shores and urban areas.

In spite of its merits, its value have not been evaluated fully, and a number of development have been ongoing in this region. Roads have been built across the region; crop and vegetable fields have been cultivated; and golf courses in certain designated areas have been established (Picture 10). In addition, shores and bottoms of dried-up rivers have been rearranged and substantially damaged for a poor excuse for controls on water in the region.

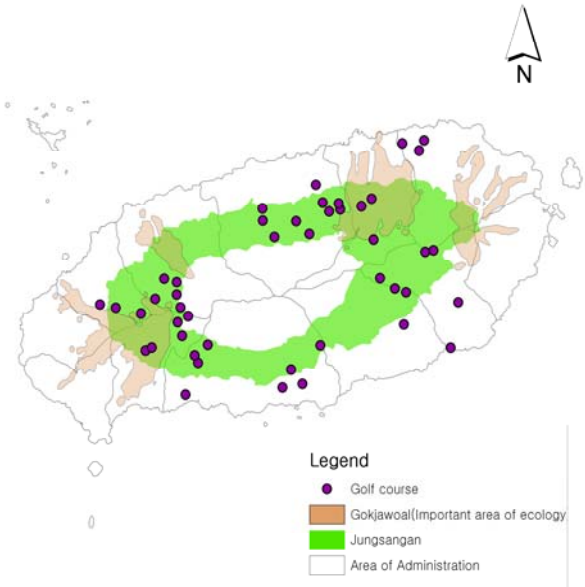
Things that are not ecological friendly are not beautiful in terms of landscape. Ecological landscape includes "oreum" that are hills or mountains in the region



Picture 8. Range of hilly and mountainous areas & distribution of villages



Picture 9. Distribution of streams



Picture 10. 'Gokjawoal' ("lung" bushes) & golf courses in the hilly and mountainous region

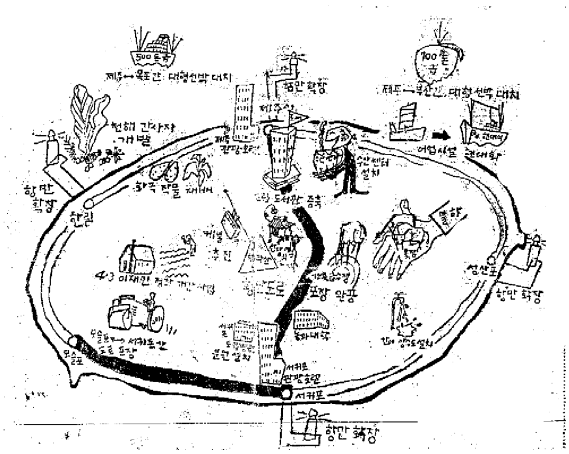
formed by second volcanic activities of the island giving the panoramic beauty with Mt. Halla and seas to Jeju. Development in the region should be cautiously considered to conserve that beautiful region with 'oreum.'

There are three types of 'oreum' by location including the ones working as a landmark in an urban area, ones with various features near main roads in the region, and a number of them located in the same area creating unique 'oreum' landscape.

In order to keep Jeju as itself, it is essential to know the function of 'jungsangan,' the hilly region, as its role of the near and far scenery as well as importance of 'oreum' and streams when urban planning is set up. It is because there are needs for consideration of scenery of Mt. Halla and 'oreum' in the province, and it cannot be left out in development of the province and downtown areas in the case of Jeju. That would be uniquely local characteristics of Jeju. In order to implement that, it is significant to cautiously consider how to build roads and set the height of buildings, where parks will be located, and how to set the relations between roads and building according to the urban planning.

3. Situation & Reaction to the Ropeway on Mt. Halla

Development in Jeju started in 1960s. Then military government that was formed by it military coup planned the ropeway on Mt. Halla as one of development engines in that period making the island to a favorite tourist destination like Hawaii of the United States (Picture 11). However, the plan was left out because of other priorities and has just existed as a potentially activated plan for 40 years.



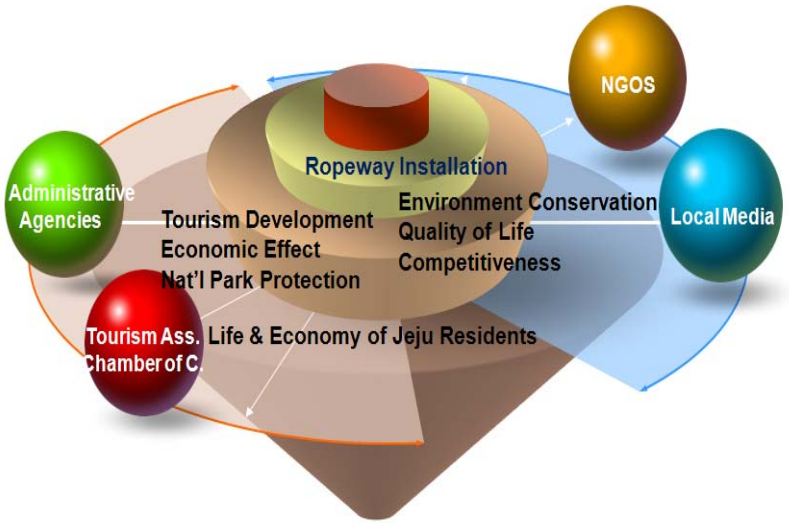
Picture 11. Draft diagram of development of Jeju in 1960s

(source: article on January 4, 1963)

The issue of the ropeway construction became the main controversy, and its situation by year as follows:

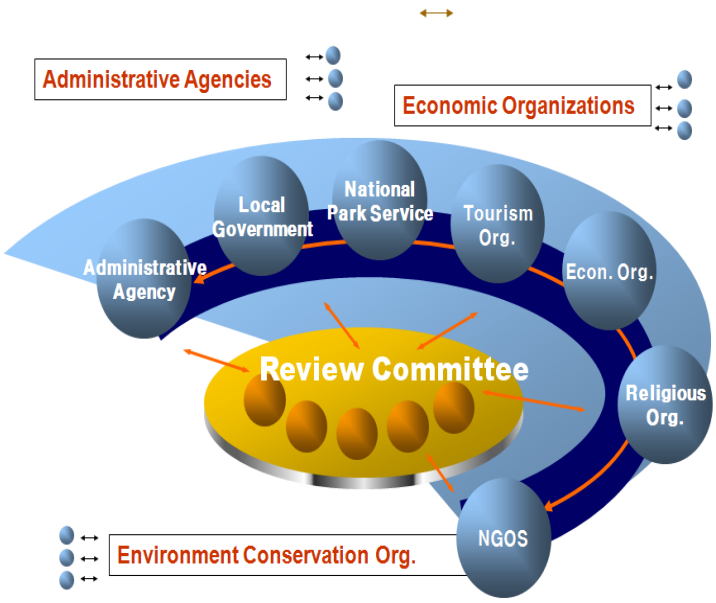
Year 1990: Jeju government considered the ropeway construction to prevent damage to the environment due to the increase of hiking people

Year 2000: The ropeway construction to revitalize the local economy as tourism resources caused harsh controversy in the local community. In particular, the tourism association and chamber of commerce asserted its necessity. However. NGOs and local media reacted strongly against the plan that would destruct the environment (Picture 12).



Picture 12. Positions & problems of the ropeway construction on Mt. Halla

Year 2001: The national government formed a review committee composed of 12 members from the environment agency , Buddhist organization, academic circle, NGOs, economic organization, tourism organization, national park service, and local government(Picture 13). The committee reviewed the issue in relations to needs for protecting the Mt. Halla National Park, and decided to build the ropeway.



Picture 13. Review committee established by the national government in order to examine the feasibility of the ropeway construction at a national park in 2001

Year 2002: The national government referred the feasibility study to the national disaster institute and private company, they submitted a report of the ropeway construction with directions and methodology to minimize damage to the environment. At that time, only the environment conservation was the main issue, but the scenery and landscape of the environment was not significantly considered. NGOs and movements about the landscape was not strong enough.

Year 2003: Jeju provincial government decided to construct the ropeway with the permission from the environment agency of the central government.

Year 2004: There were strong protests of NGOs and change of the stand of the central government due to unique geology of Jeju and its regulations; thus, the local government paused the discussion on the construction. At the end of year 2004, however, the newly elected governor mentioned the necessity of the ropeway and caused the controversy again. The committee got on it session again, and survey was conducted, but it faced

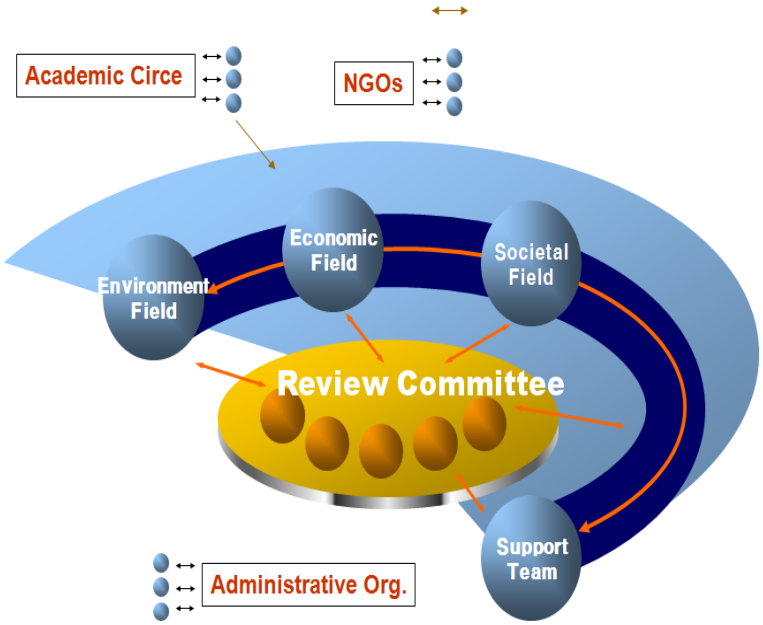
difficulty of enhanced policy of the ropeway construction in a national park in December.

Year 2005: A task force was established to review the construction from scratch and decided not to construct the ropeway. The governor who was reported by the task force agreed to the decision.

Year 2008: A new controversy occurred when the controls of the central government on the ropeway construction were loosened.

Year 2009: Unlike the existing committee, a new review committee was established with 15 members from economic, environment and societal field (Picture 14). The new committee reviewed the issue again and advised not to construct the ropeway due to several reasons including especially the landscape and scenery problem.

Year 2010: In June, a newly elected governor declared not to construct the ropeway.



Picture 14. Review committee established by the Jeju provincial office to examine the feasibility of the ropeway construction on Mt. Halla

4. Effect of Damage to Landscape by the Ropeway Construction on Mt. Halla

4-1. Influence on Landscape by Simulation

(1) Analysis methodology

It is based on the simulation by using the Arc GIS program and Jeju local data from metrical maps (1/25000) of the national geography service. In addition, the scale modification has been conducted with the consideration of the size of buildings and measured data of the GIS maps.

(2) Conditions

The following general application standard was applied for the simulation.

1) The basic data applied to the landscape data were based on the 'Final Report of the Feasibility for the Ropeway Construction on Mt. Halla' (Jeju Province, 2000), and it focused on the 'Yeongsil' trail of Mt. Halla.

2) In addition, the data about location of columns and 12 sites were based on the 2000 report, and the size and heigh of the columns were figured out according to the general standard.

- Size of the bottom of the column: width×width, 5m×5m
- Height of the column: 58m, but the height of the first and last column: 38m

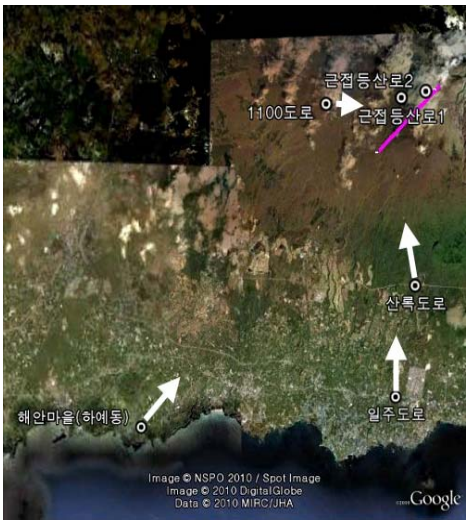
3) The analysis was conducted based on the columns without cable cars.

4) Objectivity was given by using the Arc View Gis, Map Source, Google Earth and photographs of the sites with the 3-dimensional comparison and image change analysis. As for the 3D analysis by Google Earth, the number of columns was modified to 10 of them due to the location modification of the final terminal.

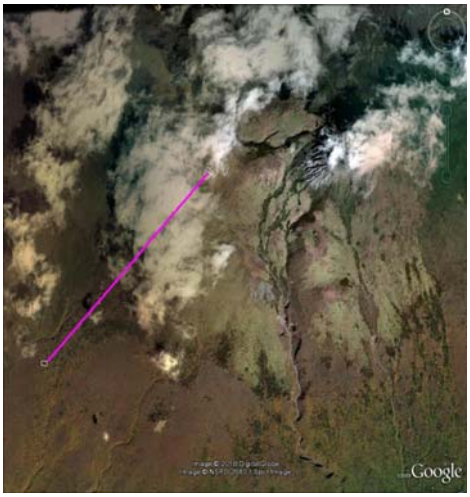
5) In addition, it was assumed that there was no difference between the image from the Arc View Gis analysis and photographs of the sites although there was a technical limit to modify the sight from the ground to a visual point of a person.

(3) Requirements and location of view points

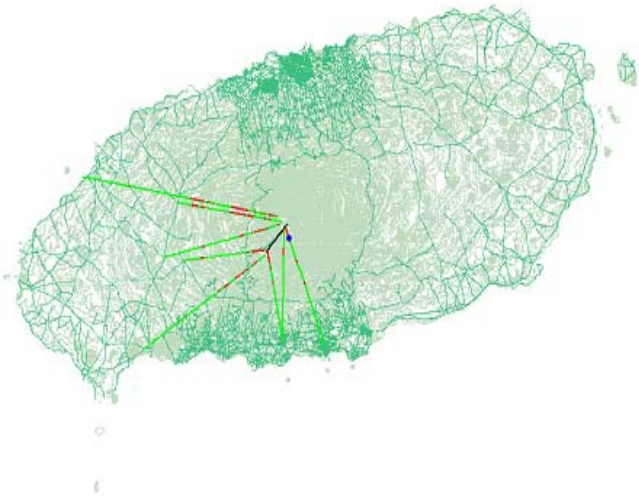
Six view points were designated based on the geographical and geological factor including two near trails to 'Witse oreum,' two in the hilly and mountainous region (1100 Road, Roe Deer Road), and two in the shore area (Circulation Road near new towns of Seogwipo City, 'Haye' district) (Picture 15). The first two view points were near; the second two were in the middle of the sites; and the last two were located in the far distance.



Picture 15. Location of view points in a close, middle, distant range



Picture16. Location of viewpoints/final terminal & the path of column structures



Picture 17. Analysis of visual areas from the view points(black line: paths of the ropeway, green line: parts of visible areas, red lines: parts of invisible areas, blue dot: part of the first barrier)

Picture 16 reveals the elaborated visual point, final terminal, installment path of column structures. It was assumed that there was no possibility of covers due to geographical barriers according the analysis of visuality from the six view points of the ropeway (Picture 17).

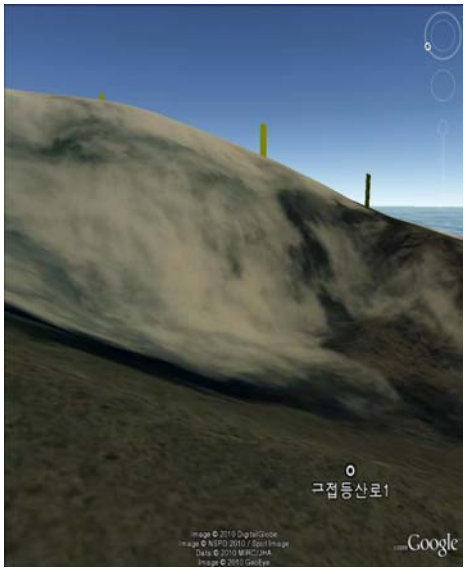
4-2. Effect on the Scenery in a Close Range

(1) Effect analysis on the scenery from the close range view point 1 of a trail

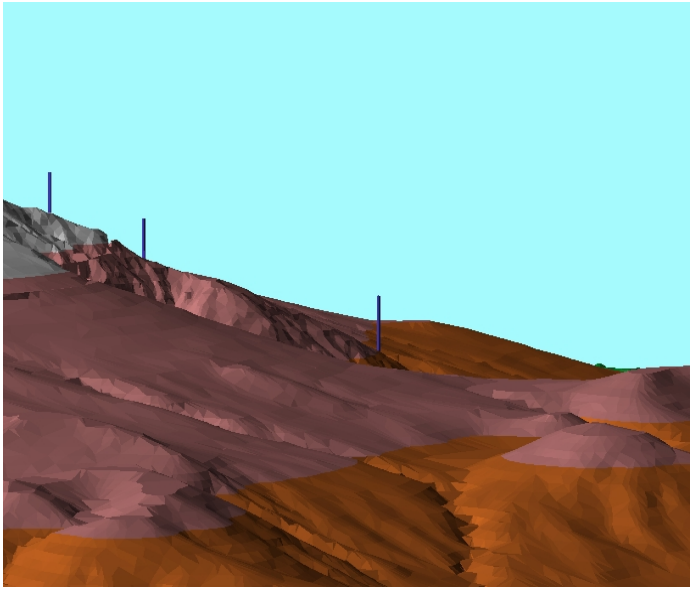
The classification of viewscape and landscape depends on its scenery. The area to be installed with the ropeway has the high value of scenic landscape due to its beautiful scenery.

The close range view point 1 of one of the two designated trails is an important view point due to the overflow of hikers. It was almost the same result with the expectation by analyzing site photographs (Picture 18) and geographical images of analysis results (Picture 19 & 20) and comparing them. In other words, the analysis with Google Earth (Picture 19) and Arc Vew GIS (Picture 20) revealed that the view point would be seriously obstructed by the construction of the ropeway because it had geographical features that ran through the hilly and mountainous region from the top of Mt. Halla down to the seas.

Picture 18. Photograph of the site

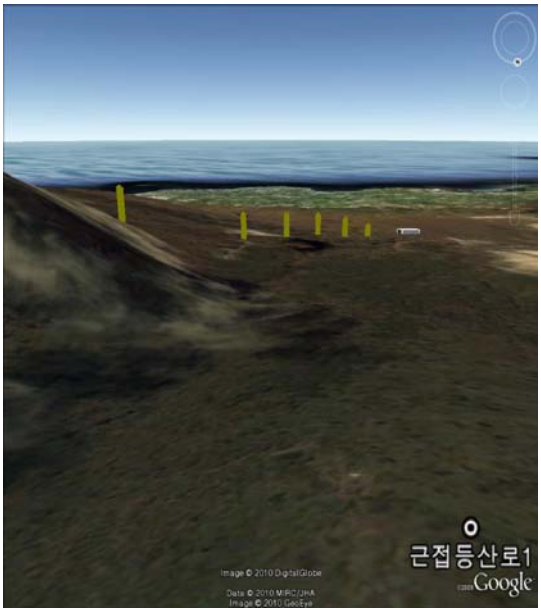


Picture 19. Image of the middle columns at the close-range view point 1 using Google Earth

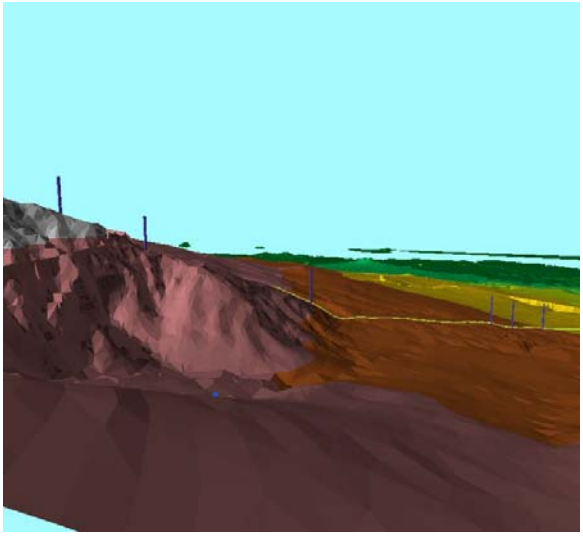


Picture 20. Image of the middle columns behind the close-range view point 1 using Arc View GIS

In particular, columns of the ropeway across 'jungsangan,' the hilly and mountainous region, will create a negative image because they will look like a cluster structure depending on location of view points. When they are seen toward the ocean, they will cause damage to scenic landscape (Picture 21 & 22).



Picture 21. Analysis result using Google Earth (toward the ocean)



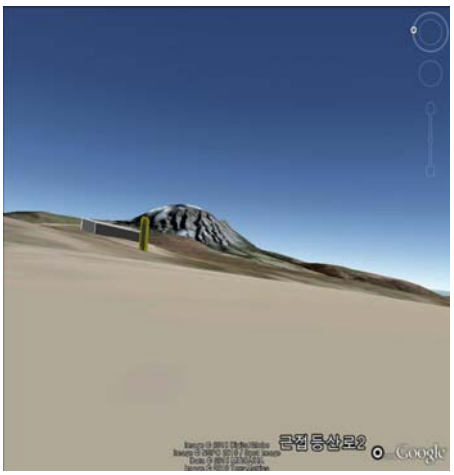
Picture 22. Analysis result using Arc View GIS (toward the ocean)

(2) Effect analysis on the scenery from the close range view point 2 of a trail

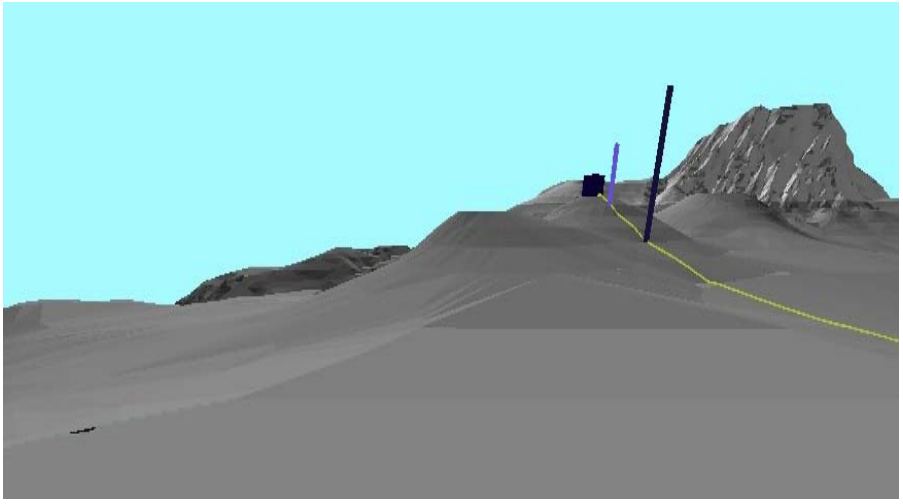
As it is seen in Picture 23, 'Witse oreum,' the highest hill, is one of the most beautiful features of Jeju and the trail of a number of hikes.

According to the result of the simulation (Picture 24 & 25) of the site established by the photographs of the site (Picture 23), the distance between the ropeway structures and the scenery from the close range view point 2 of the other of the two trails was more shortened, and consequently it was assumed that the ropeway columns looked relatively much larger and caused scenery problems.

Picture 23. Photograph of the site

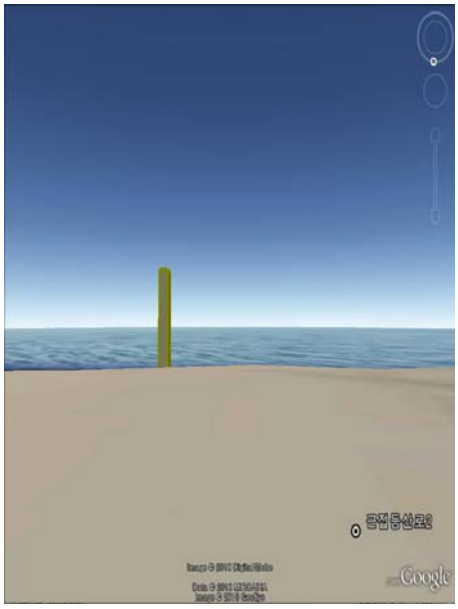


Picture 24. Analysis result with Google Earth

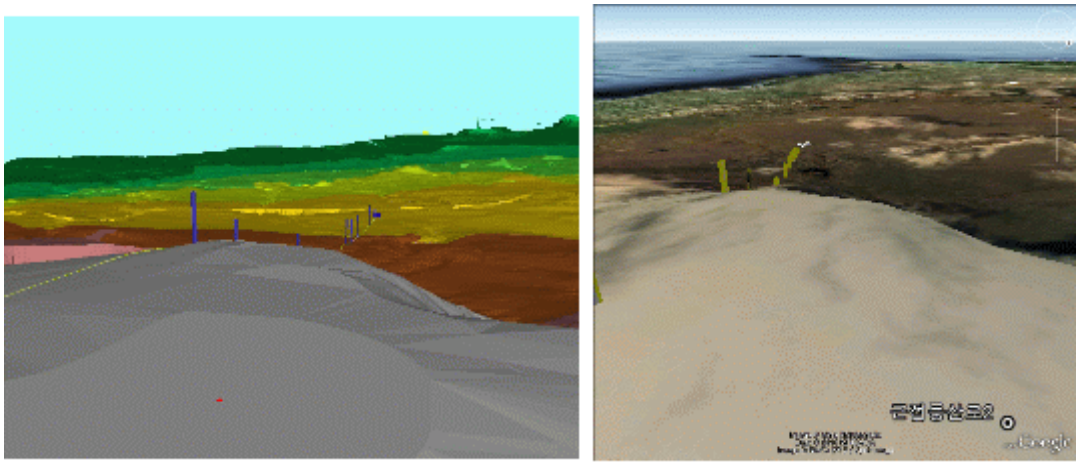


Picture 25. Image of the terminal and column structures little bit behind the close-range view point 2

In particular, it was assumed (Picture 25) that the final terminal and the first and second column would destruct the magnificent scenic landscape of the 'Bangnok' pond on the top of Mt. Halla from the view point of the 'Yeongsil' trail; columns near the view point would create visual obstruction (Picture 26), and middle columns across the plain of 'Senjakjiwat' would destruct scenery of the plain and the seas of Seogwipo City (Picture 27) because they would look like a cluster structure depending on view points according to the result of the simulation.



Picture 26. Image of a column that is nearest to the view point according to the analysis result using Google Earth

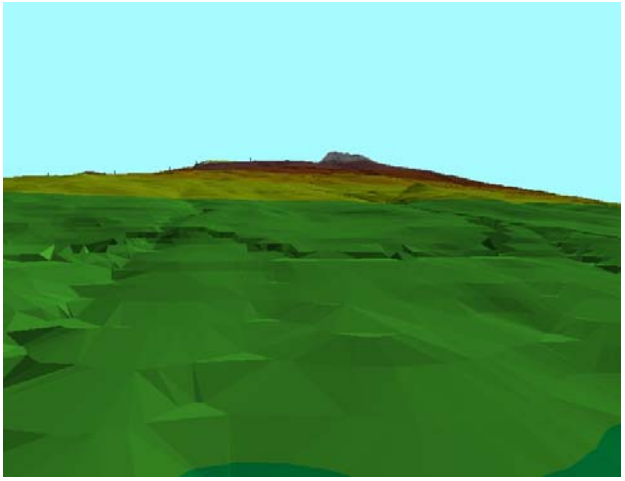


Picture 27. Change of scenery of the ocean and hilly areas due to the middle column structures (left: Arc View GIS, right: Google Earth)

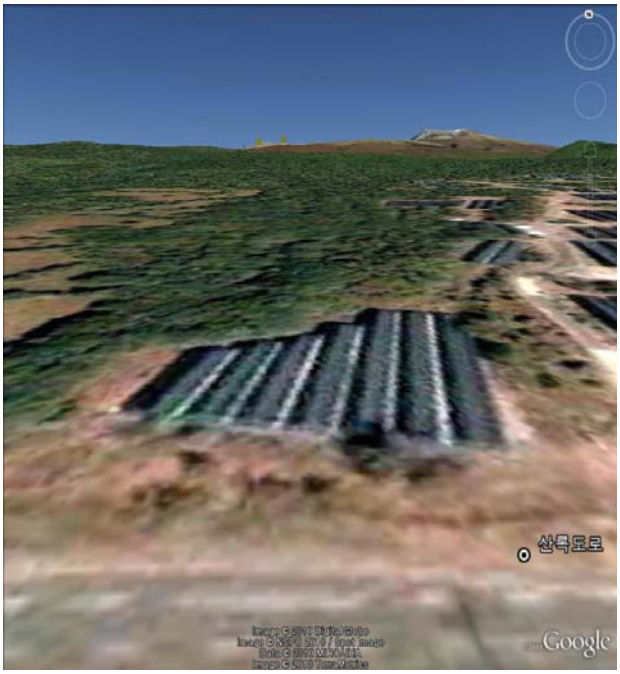
4-3. Effect on the Scenery in a Middle Range

(1) Effect analysis on the scenery from the Roe Deer Road

According to the simulation result of the view point of the Roe Deer Road to the south of Mt. Halla, it was assumed that the prominent exposure of some (approximately four) middle columns would create a negative image to the scenic landscape from the middle region to the 'Bangnok' pond on the top of Mt. Halla; however, according to the comprehensive analysis result using Googel Earth (Picture 28) and Arc View GIS (Picture 29), the negative image to the scenic landscape was relatively less than the one from the view points in a close range.



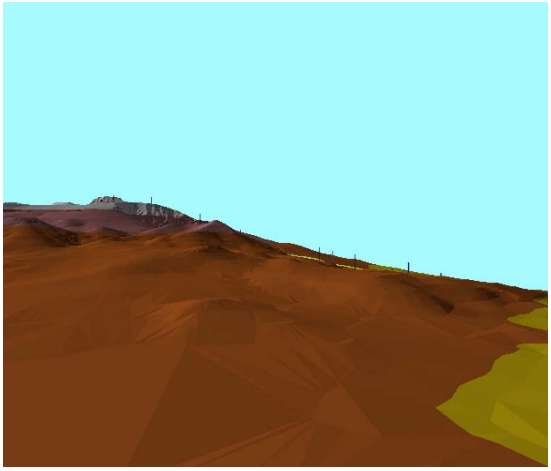
Picture 28. Analysis result using Arc View GIS (image from the middle-range view point)



Picture 29. Analysis result using Google Earth

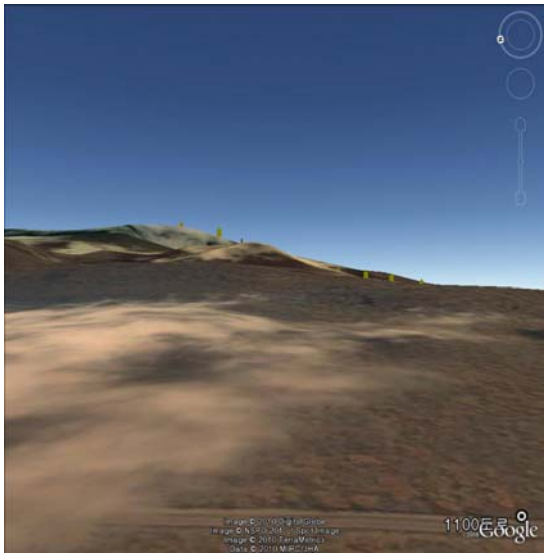
(2) Effect analysis on the scenery from the 1100 Road

According to the simulation result (Picture 30 & 31) of the vicinity of the 1100 Road rest station, the most of the middle column structures would be exposed except for some but more than the ones near the view point of the Roe Deer Road.

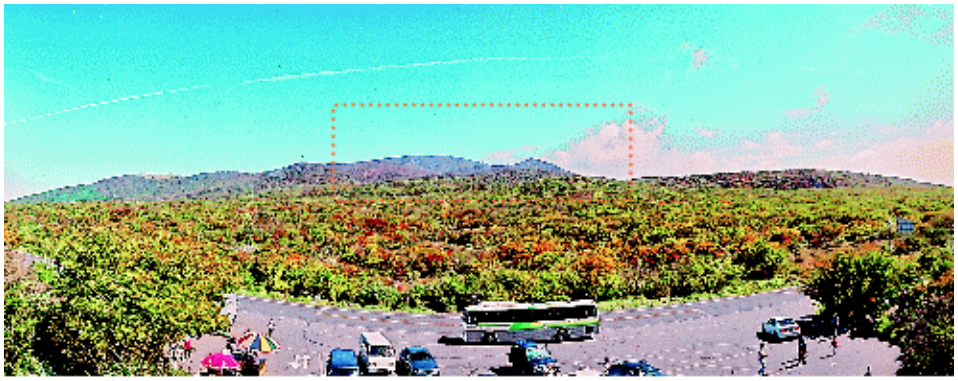


Picture 30. Arc View GIS analysis of columns from the middle-range point (1100 Road)

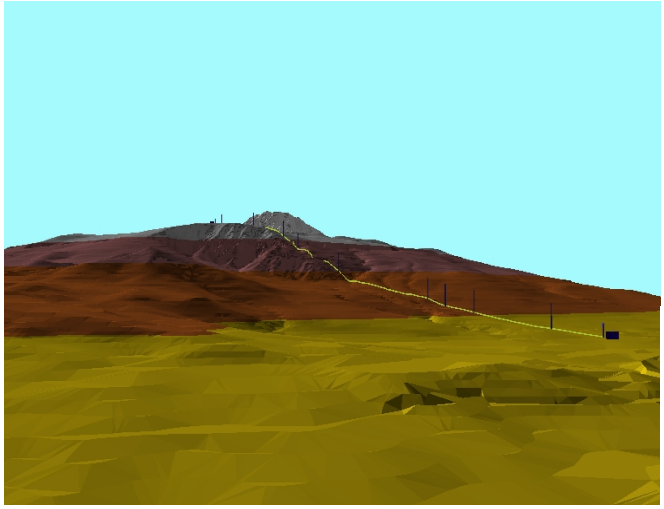
Although there was less damage to the scenery comparing to the one in a close range, it is expected that the column structures would cause damage up to certain extent to the landscape near the 1100 Road rest station (where the magnificent scenery could be appreciated) that was valuable tourism resources with many visitors (Picture 32).



Picture 31. Google Earth analysis result



Picture 32. Site photograph (with the red-dotted box for the columns)



Picture 33. Change of scenery in the hilly region from an extra view point using Arc View GIS

In particular, it is expected that the column structures would make an adverse scenery effect up to certain extent on Mt. Halla and the hilly and mountainous region due to the geographical features from the view points near the roads towards the final terminal (Picture 33).

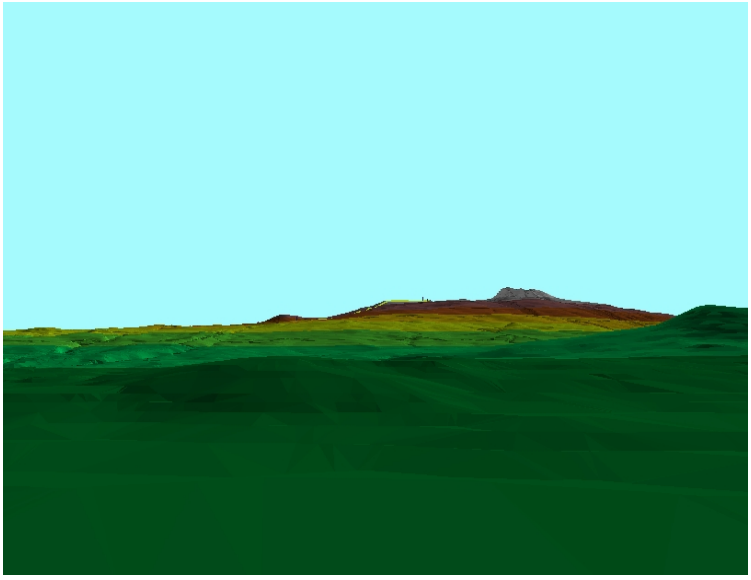
4-4. Effect on the Scenery in a Distant Range

(1) Effect analysis on the scenery from the Circulation Road

There is a possibility of exposure of many column structures with consideration of conditions of the site (Picture 34) from the view point near the Circulation Road of new towns in Seogwipo City. In particular, damage to the scenic image near the top of Mt. Halla is expected up to certain extent due to the prominent exposure of the column structures; however, there would be less damage than the one in a close range according to the analysis (Picture 35).

Picture. 34. Site photograph

Picture 35. Analysis result using Google Earth.(the rectangle for the column area)

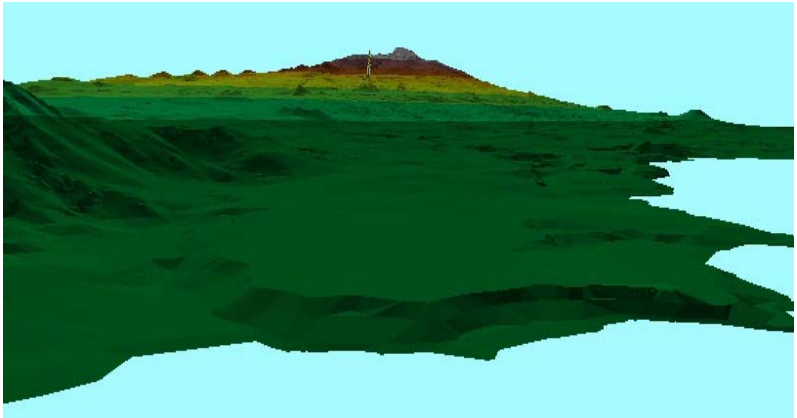


Picture 36. Analysis result using Arc View GIS

(Image of columns from the distant-range view point)

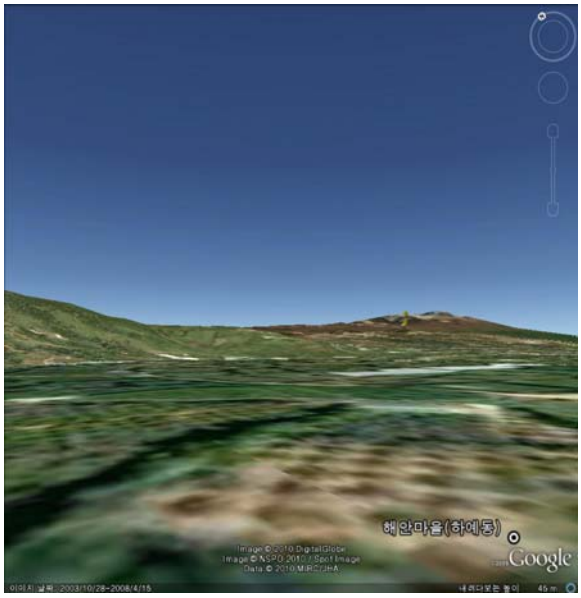
(2) Effect analysis on the scenery from the villages along the seashore

It is expected that the middle columns would look like a cluster of them from view points near areas of 'Jungmun-Andeok-Songaksan' along the seashore according to the comparison of the analysis result of Google Earth (Picture 37) and Arc View GIS (Picture 38). It is also assumed that the most of columns would be exposed, but the effect on the scenic image would be significant comparing to the ones in a close and middle range.



Picture 37. Analysis result using Google Earth

(Image of columns from the distant-range view point)



Picture 38. Analysis result using Google Earth

Ⅲ. Conclusion

1. Conversion into the Development Policy with the Esthetics of Slowness

So far, we have discussed the current situation and problems of damage to scenery caused by development of the ropeway construction on Mt. Halla that is World Natural Heritage and essential to scenery factors of Jeju. The cause of the problems was created by development based on the economic logic with its methods with less regards for the local environment. This culture of "Hurry, hurry" might be related to the development policy that started in the 1960s. A series of development had to be conducted to improve the primitive infrastructure of cities, poor living environment of farm villages, and many others in a poor condition those days. Consequently the esthetics of quickness smeared into our daily life, stimulated development of the nation, and supported a plenty of achievement in the society. The international community was surprised by Korea's accomplishment in a short period of time, and the foreign press expressed it as the "Miracle on the Han River."

Jeju was also influenced by the culture of "Hurry, hurry" and developed into the most popular tourist destination in the nation due to the development of tourist sites that started in the 1960s. However, Jeju has lost a plenty of significant features under the name of development logic during the period such as its beautiful shoreline obstructed by construction of coastal roads, magnificent scenic landscape blocked by commercial buildings and more. There have been attempts to apply

the development logic to areas of natural scenic landscape including the recent ropeway construction controversy on Mt Halla. However, the simulation result revealed that artificial structures would cause serious damage to natural scenery, and this could be the loss of scenic resources.

In particular, Jeju Island is the World Bio Sphere, World Natural Heritage and World Geological Park designated by UNESCO. Jeju with these "triple crowns" is the first in the world, and it means that Jeju belongs to not only Korea but also the world. Jeju is also vying for the designation to be one of the World 7 Scenic Regions. Scenery is composed of natural landscape and viewscape of the daily life, and these two elements in harmony create beautiful scenery. The areas of three crowns of UNESCO are the natural landscape, and the environment of our daily life is the everyday veiwscape.

However, unfortunately, our viewscape has been severly obstructed by a number of roads and apartment complexes driven by the administration, and these unattractive and large man-made structures caused serious damage to beautiful scenic landscape that was highly evaluated by UNESCO. Furthermore, traditional grass roofs of house were replaced by slate roofs, and traditional alleys, 'olle,' were changed into simply large roads. Nevertheless, the changes have been converted back into their original state including restroration of the 'Sanji' and 'Byeongmun' stream.

In advanced countries, they have spent a great of amount of budget to restore the environment and support the civil engineering works for environment conservation. The Jeju province should also apply the philosophy of 'Conservation First and Development Afterward' to large-scale development projects of the road construction and civil engineering works. It is now time to start the new paradigm of the policy of civil engineering development to protect and keep the UNESCO-recognized environment and the space of our life by reflecting on the civil engineering works of the past.

2. Fundamental Principles to Implement the Esthetics of Slowness

As fot the solution that fits for Jeju, it is necessary to figure out fundamental principles of its 'Land,' 'Space' and 'Scale' discerned from the understanding of them for a long period of time.

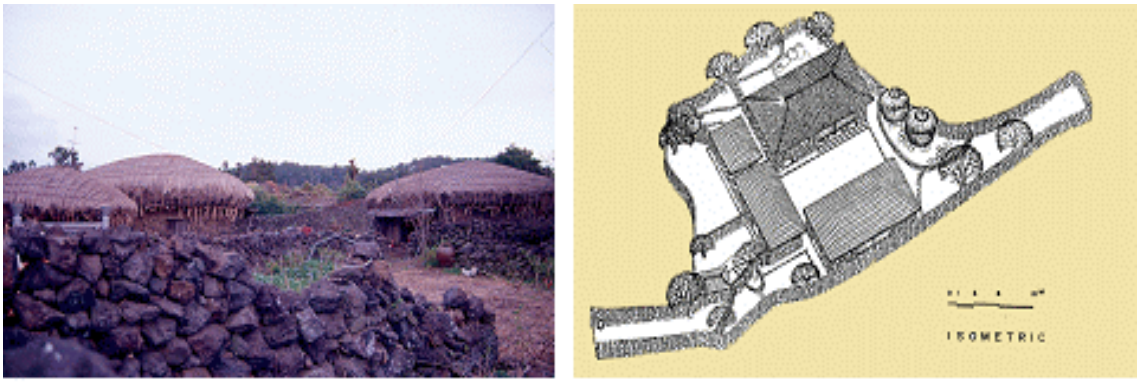
- Land of Jeju

Its land should not be substantially damaged because it has features of a volcanic island including unique geological and geographical features (Picture 39).

Picture 39. Various conditions of land creat various scenery

- Space of Jeju

There should be an understanding of the traditional Jeju straw-thatched house that contains the philosophical thought and a plenty of experience of Jeju people; therefore, space of Jeju should be evolved with not only the formational but also spatial esthetics (Picture 40).



Picture 40. Stone fence & gate creating open and closed space

- Scale of Jeju

Buildings in Juju are not as large as the ones in mainland Korea. This has an advantage to deal with strong wind and creates harmonious scenery with the distant backdrop of Mt. Halla and hilly 'oreum' (Picture 41).

The significance of urban architecture that fits for Jeju will increase through reflection of identities as well as consideration of traditional scenery of Jeju.

Picture 41. Jeje's scale from natural location of straw-thatched houses

3. Directions for 'Conservation First & Development Afterward'

Therefore, it is also important to create urban landscape that fits for Jeju as the first stage of success to becoming Juju Free International City. It is very encouraging that the provincial office has recently formed teams for urban design to keep and maintain its scenery and landscape that fit for Jeju.

However, there are several problems to be solved before the effort to keep Jeju's scenery and landscape makes steady headway.

First, the problem of the overlap of administrative regulations should be solved. There should be the main system with a new law on scenery to keep the environment within the range of the existing law on construction, national land planning and Jeju Free International City. The base for the establishment of urban scenery and landscape should be formed by those existing laws, and it should be supplemented by ordinances on urban scenery and landscape.

Second, there should be the consistency of the administrative performance. In the past, there was the inconsistency caused by different governors and officials of cities and countries of the province regarding policies and projects of architectural beauty and urban landscape. The uniform directions of administration should be established through the creation of scenery ordinances and review of them with guidelines.

Third, the establishment of a objective standard for the creation of urban scenery based on culture. The urban scenery should contain not only its physical environment but also culture and history. Accordingly it is necessary to establish the standard for the urban scenery with elements that contain its Mt. Halla, ocean, dry streams, green space and cultural assets of Jeju.

Fourth. a mature sense of citizenship is needed because there is a limit to administrative efforts to keep the urban scenery and landscape. Its citizens should shed their old way of thinking about new administrative regulations for the urban landscape. They should understand that those new regulations are the least means to raise the level of urban culture and quality of our life.

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