A METHOD OF VALUE SYSTEM DESIGN FOR REALIZATION OF PROJECT GOALS IN THE URBAN REGENERATION PROJECT

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ABSTRACT: The objective of an urban regeneration project is recovery of urban utilities through a physical, environmental, cultural, industrial and economic regeneration. The current paradigm of urban regeneration is not a simple redevelopment as physical redevelopment or improvement. Urban Regeneration is an overall development including a central commercial capacity and business capacity for administration and management, cultural facilities, sightseeing, and a residential area. Especially, Aspect of pursuing public values not individual stakeholder's benefits, It is different from general construction project. Various values of government and local government should be reflected. For a successful urban regeneration project, it is necessary that all of values are considered and monitored. For that purpose, this study would offer to contribute the properties of urban regeneration the solution for successful urban regeneration. This study analyzed many characteristics and various values of an urban regeneration project in S. Korea. We used analytic hierarchy process (AHP) method so as to consider the relation between superior values (government, local government, etc.) and subordinate values.

Keywords: Urban Regeneration, AHP, Value System Design

1. INTRODUCTION

Urban regeneration is the outcome of the interplay between many sources of influence and, more importantly, it is also a response to the opportunities and challenges which are presented by urban degeneration in a particular place at a specific moment in time.(Robert & Syskes, 2000) Because of new urban extension lately, population of the old town area has been decreased and also the functions of commerce, culture, education and welfare have become weaker. That's the reason why the need for urban regeneration is rising. Besides It is working on not only improve 'The quality of life' but also take out the new function in the same time.

In the process of urban regeneration, a variety of high level plans including the 'urban master plan' reflects low level plan, so that 'project implementation plan' can be established. Therefore, the value from each level should have an influence on low level plan; eventually 'project implementation plan' should include the variety of related high level plan value.

In S. Korea, each level of the plan should have an analysis of the current situation in the target area, the relationship with high level and consideration of advanced cases, and the problems potentialities. Through these steps, the 'project implementation plan' sets the goals and values. Unfortunately, we don't have proper program to reflect these contents quantitatively. This study proposes a method that high level contents which is related to project plan should reflected to low level plan effectively.

This study reflects 'urban master plan' to the goal of urban regeneration which eventually gets to the value of each project plan. Finally, 'Project implementation plan' can be established including the value of each project's pursue. Through these steps, it can be achieved systematically with the values from urban regeneration and the 'project implementation plan'. For that, this study uses

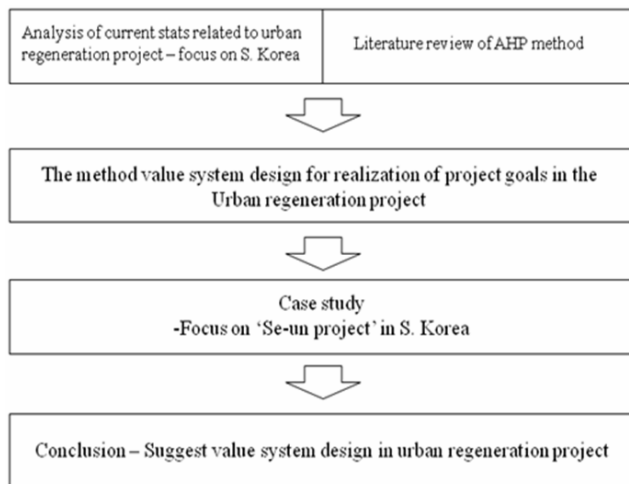the AHP technique for value system design. The flow and methodology of this study can be drawn as Figure.1.

Fig. 1 Flow and methodology of research

2. Literature review

2.1 Analysis of current states related to the urban regeneration project

To establish value system design on the each phase from high level plan to lower level plan, preliminary research is required to analyze the current states of the urban regeneration plan. To that end, as a result of a thorough review of all kinds of documents for urban planning, and then interviewed with specialist associated with the urban regeneration project by the three times about it. In this result, the current plan establishment was organized as follows in Table.1.

Table. 1 Current status of plan establishment regarding urban regeneration project in S. Korea

	Urban master plan	Urban and living environment plan	Project implementation plan	Each zone modifying plan
Main agent	Major	Major	Project planner	Project Planner
Scope	Whole relevant city	Whole relevant city	Project within modifying zone	Several projects within modifying zone

In addition, to establish a systematic value system design in the urban regeneration project, a hierarchy of the related plans has to be developed. Figure.2 shows the hierarchy of various plans regarding the urban regeneration plans.
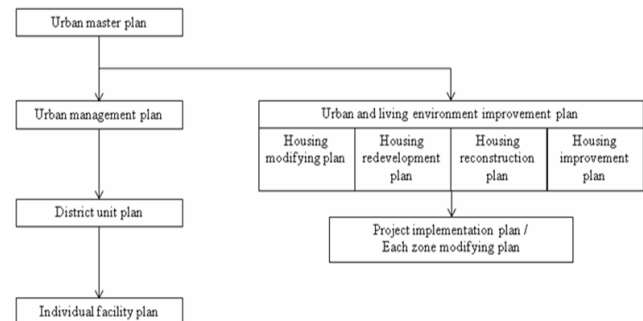

Fig. 2 Hierarchy related to the urban regeneration project in S. Korea

2.2 Value system design in the urban regeneration project

2.2.1 The methodology of Analytic Hierarchy Process

AHP (Analytic Hierarchy Process) was introduced as a management tool for decision making in multi attribute environments by Satty on 1980. The AHP allows for inconsistency because in making judgments people are more likely to be cardinally inconsistent than cardinally consistent because they cannot estimate precisely measurement values even from a known scale and worse when they deal with intangibles (A is preferred to B twice and B to C three times, but a is preferred to C only five times) and ordinally intransitive (A is preferred to B and B to C but C is preferred to A). Figure.3 shows the advantage of the AHP method. (Satty. T. L., 1990)

By applying AHP, we can draw out relative weight of the pursued value for each planning phase. In addition, by reflecting these numerical values upon lower level, the weight of the pursued value from the higher level might be reflected on the lower level.

2.2.2 Vale system design

In the value system design, the system engineer defines objectives and structures with them in an objectives tree such as illustrated conceptually in Figure.3. Then, these objectives are an organized picture of what the stakeholders intend to accomplish with a given project or program. (Andrew P.Sage, 2000)
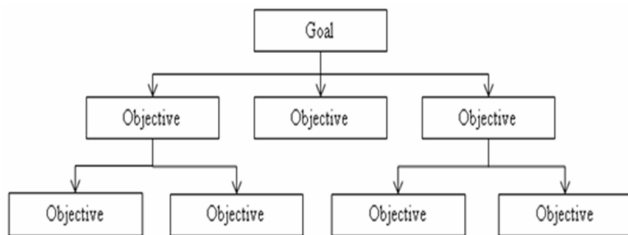

Fig. 3 Value system design

Therefore, the value system design in the urban regeneration project can be described as - a reflection of pursued value in related higher level plan for project planner. These can be converted to a value system and schematized as in the example below Figure 4.
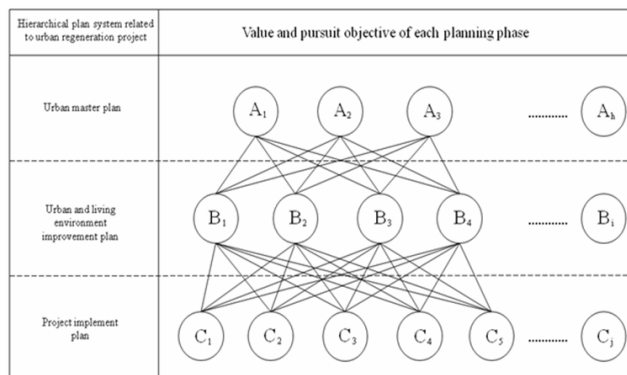

Fig. 4 Value system design in the urban regeneration project

When we mentioned the previous studies, there are two types of the case; the first case has the synergy effects between each values. And the second case has negative effects each other. Therefore, those cases could be reflected quantitatively.

For those reasons, this paper purpose the way of reflecting the pursued value on a plan from each phase systemically. In addition, this paper aims to reflect the interactive relationship between values. Finally, by combining those two ways, methodology of comprehensive value management is developed about the value system.

3. The method of value system design in urban regeneration

For the development of value system design to be successful in an urban regeneration project, the importance of the higher level plan's relative weight of pursued value has to be drawn out in the each phase systematically. In this process, AHP methodology is used, and the scale of AHP is shown Table 2.

Table. 2 The scale of the AHP method

Scale for evaluation		
Importance	Judgment	Explanation
1	Equally important	Two criteria contribute equally to the objective
3	More important	Judgment slightly favors one criterion over another
5	Very important	Judgment strongly favors one criterion over another

In this paper, when analysis by pair-wise comparisons between each value using the scales from the Table 2, the relative values are drawn out. At that time, those are called by' Direct influence' about each value.

After draw out that how much affect directly to the plan using AHP, the existed interaction relationship has to be considered quantitatively between each value.

To that end, the format is used like Table 3.

Table. 3 The method of interaction between values

Pursued Value	Direct Influence	A	B	C	Indirect Influence	Total Influence	Relative Weight
A			-	+			
B		-					
C		+					
sum	1	-	-	-	-	-	1

In the Table 3, 'Direct influence' means relative weight of each value which can be drawn out by AHP. In addition, 'Indirect influence' means the weight of interaction between project values. Each value's interaction is denoted by (+) and (-). (+) means positive influence and (-) means negative.

On the Table 3, the mark of (+) represents there are positive effects between A and C. In addition, the mark of (-) represents there are negative effects between A and C.

After consider interaction, we can get a result of 'Indirect influence' as 'Direct influence'.

After that we calculate the 'Total influence' with direct and indirect influence by sum. Finally, we figure out the relative weight of each value.

4. Case Study in S. Korea

4.1 Outline of case study

To verify the establishing method of value system in the urban regeneration project, as this paper suggested, the case study was conducted. The subject of this case study is the project that is currently going on in S. Korea. In order to conduct an accurate case study, the suggested method should be applied to the establishment phase of each plan. But when it comes to the urban master plan, there is a time limitation, since the plan is rewritten every 5 years.

In this reason, this paper validates the value system design with 'Sewoon project' in S. Korea. 'Sewoon project' has several pursued values as shown Figue 5.
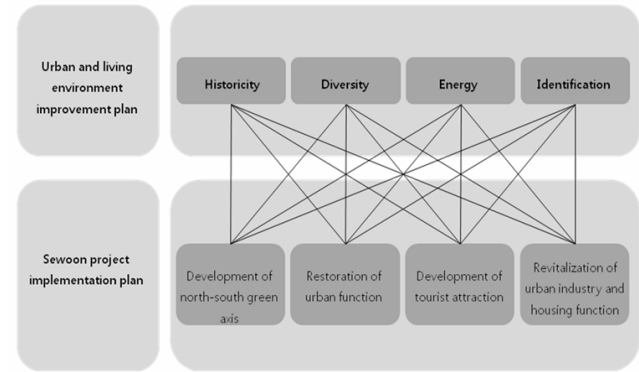

Fig. 5 Pursued values in Sewoon project implementation plan

4.2 Value system design of 'Sewoon project implementation plan'

In case of 'Sewoon project implementation plan', the project's goal and pursued values are definitely expressed. According to this, components (facilities) of the project are planned and designed. For this phase, pursued values of the higher level are reflected systematically. Thus, It is not only to reflect the pursued concepts on the higher level plan, but also understand the accurate interactive relationship between pursued values.

To achieve the pursued value on the 'Urban and living environment improvement plan' which is a higher level plan, we analysis the order of priorities using pair-wise comparisons between the values of 'Sewoon project implementation plan.

Table. 4 The result of pair-wise comparisons between the values to achieve a higher level plan

Pursued Value		Urban and living environment improvement plan				Weight (Direct Influence)
		Historicity	Diversity	Energy	Identification	
Sewoon project implementation plan	Development of north-south green axis	0.153	0.130	0.108	0.210	0.150
	Restoration of urban function	0.312	0.268	0.225	0.269	0.262
	Development of tourist attraction	0.362	0.299	0.373	0.363	0.346
	Revitalization of urban industry and housing function	0.173	0.304	0.294	0.156	0.242

We surveyed for this case study to 25 people including project managers and designers. As a result, the weight of each value using AHP is shown Table 4. With this, we can draw out the 'Direct influence' of pursued values from 'Sewoon project implementation plan'

Next, It is necessary to draw out the 'Indirect influence' considering interactive relationship between pursued values from 'Sewoon project implementation plan.' To draw out the interactive relationship, we carried out a based on interview with experts. The result of it is shown Table 5. On the Table 5, in the second raw of the first column, there is a mark of (-). It means there is negative affect between two values. In addition, the meaning of number '0.039' is multiple figure of each 'Direct influence' from the each value (0.150 x0.262 = 0.039).

Meanwhile, we can also draw out the 'Indirect influence' between each value on the Table 5. For example, the case of 'Development north-south green axis', Indirect influence (-0.023) is drawn out by sum of the efficiency with other values (-0.039, +0.052, -0.036). After that, 'Direct influence' (0.150) adds to 'Indirect influence' (-0.023) for draw out the 'Total influence' (0.127). With this process, like the example on the Table 5, the 'Total influence' is figured out. Finally, after summarizing the total influences (0.732), 'Relative weight' is drawn out with each total influence divided by sum of total influences.

As a result of that reflect the value system design including related high level value to the 'Sewoon project', we can find the order of 'Relative weight' of values as 'Development tourist attraction – Restoration of urban function – Revitalization of urban industry and housing function – Development north-south green axis'. In addition, the order of priority is different between the case of reflect to lower level considering just 'Direct influence' of each level's pursued value and the other case of reflect to lower level considering pursued values' interaction.

5. Conclusion

For value system design to be successful urban regeneration project, each plan phase considers the value interaction quantitatively, so that it systematically reflects to the low level plan. For this reason, this study through pair-wise comparisons of each plan value, we can get not only weight but also use this from relationship; eventually it reflects to the low level plan with 'Relative weight' of each pursued value. Besides, to prove the presented method, applying value system design in 'Sewoon project' and the result will below.

We operated the interaction analysis through the survey, personal interview and pair-wise comparisons. If we apply this to the project establishment phase and predict the result in advance, we can utilize for this to have resource allocation and decision making actively during project propel process.

Table 5. Relative weight of Sewoon project implementation plan for pursued value

Pursued value	Direct influence	Development north-south green axis 0.150	Restoration of urban function 0.262	Development tourist attraction 0.346	Revitalization of urban industry and housing function 0.242	Indirect influence	Total influence	Relative Weight
Development north-south green axis	0.150		- 0.039	+ 0.052	- 0.036	-0.023	0.127	0.173
Restoration of urban function	0.262	- 0.039		- 0.090	+ 0.063	-0.066	0.196	0.268
Development tourist attraction	0.346	+ 0.052	- 0.090		- 0.084	-0.122	0.224	0.306
Revitalization of urban industry and housing function	0.242	- 0.036	+ 0.063	- 0.084		-0.057	0.185	0.253
SUM	1	-					0.732	1

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