

Recognition Difference of Local Residents and National Park Managers on National Park Adjustment: A Case of 37 Cancellation Areas

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Abstract

This study examined the recognition differences between local residents and national park managers on the adjustment of national parks which are conducted every ten years for the purpose of providing basic information for the park management, according to the Natural Parks Act. Both local residents and national park managers positively perceived the adjustment of national parks, but park managers showed concern towards the damage of natural resources resulting from the cancellation and adjustment of restricted development districts in Korean national parks. Local residents are more likely than park managers to recommend boundary adjustment in other national parks regarding the influence of parks adjustment on local change. While local residents recognized that the boundary adjustment of national parks improves the level of community management, park managers focused on damages on the local environment and the park landscape adjacent to the areas. The result shows the recognition differences of local residents and park managers. Further research into adjustment of national parks is necessary to diminish perception gaps among stakeholders and develop prediction indicators of cancellation effect in response to the future cancellation areas of national parks through the characteristics of cancellation communities, revitalization of local economy, and environmental change of local community.

Key Words: recognition difference, boundary adjustment, cancellation areas, National Park, Natural Parks Act

Introduction

Twenty-one Korean national parks have been designated by the Natural Parks Act since 1967. However, there have been demands for the cancellation of and adjustment in national parks due to property rights violations and deterring regional developments of private properties, which was incorporated into the adjustment areas along the process. For this reason, the Ministry of Environment has conducted the adjustment of national parks by reviewing the evaluation of

park planning and districts to ease residents' inconvenience, the revitalize local economy, and better preserve and manage the natural resources. In accordance with Article 15 (2) of the Natural Parks Act, "the park management agency shall collect opinions of local residents, experts and other interested persons, examine whether park planning is appropriate (including whether a park district is feasible) and then reflect the outcomes thereof in changing park planning" (Ministry of Government Legislation 2010).

Based on this, two rounds of adjustments have been con-

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ducted in Korean national parks. The first round was held from 1997 to 2003, and the second round from 2009 to 2010. Particularly, in the second round of adjustment, the ocean park area was increased by 0.03% from last year. Land parks area decreased 17% from the original, but 143.3 km² were released from the adjustment and 69.4 km² incorporated to it. Moreover, the number of towns in the national parks boundary declined sharply from 676 to 134, and released 91% of residents and 90% of households from the adjustment of national parks (Korea National Park Service 2010).

On the other hand, during the past 10 years, several potential candidates have mentioned by the media for the new national parks of Korea such as Taebaeksan Mountain, Baegunsan Mountain, Palgongsan Mountain, Geumjeongsan Mountain, Ganghwa Tidalfat, and demilitarized zone (DMZ). Internationally, extending protected areas were recommended to preserve biodiversity to 17% of the land and 10% of the ocean in each country by 2020 at the 2010 10th Conference of Parties to the Convention on Biological Diversity. Due to these domestic and international movements, it is expected that national parks and protected areas will be extended, and further research into the adjustment of national parks is necessary to provide general information, problems, and outcomes for the park management.

Although twenty years have passed since Korean national parks initially started the adjustment of national parks that the studies investigated three areas such as global trend on protected area management including national parks (Ministry of Environment 2006; Heo and Park 2007), institutional improvement plan for national park's resource conservation and conflict resolution efforts (Kim et al. 2005; Ministry of Environment 2008; Yoo et al. 2013), and social, economic, and environmental impacts on the adjustment of national parks (Hong et al. 2013). However, these studies are limited to examining recognition differences and adjustment effects between stakeholders on the adjustment of national parks.

Therefore, the purpose of this study is to examine the recognition differences between local residents and national park managers on the adjustment of national parks in case of 37 cancellation areas. The adjustments are conducted every ten years for the purpose of providing basic information for the park management.

Domestic and International Case Studies on Adjustment of National Parks

Republic of Korea

The adjustment of national parks examined parks based on evaluation criteria two times in 1998 and 2008. The first evaluation criterion for the adjustment was conducted with a system of selecting adjustment areas and candidate areas of national parks through evaluating national parks' resources, collecting civil petitions, problem areas, experts' opinions, assessing the effects of the parks, and reviewing legal requirement to natural vulnerability and candidate areas incorporation into national parks adjustment.

After that, in 2008, the second evaluation criteria for the adjustment were evaluated and selected via reviewing the candidate for incorporation and cancellation areas based on ecosystem evaluation. The incorporation areas into national parks adjustment were selected through detailed review of resources assessment, and the cancellation areas into adjustment were selected through detailed review of appropriateness assessment.

The first evaluation criteria for the adjustment was conducted on 82 districts of adjustment of national parks, comprising 28 natural environment districts, 43 natural village districts, 2 natural preservation districts, 2 massed village districts, and 4 collective facility districts (Ministry of Environment 2008).

The second evaluation criteria for the adjustment worked on 542 districts of adjustment of national parks, in turn, this process reduced 451 natural villages into 117, 169 massed village districts to 5, and 56 collective facility districts to 12. For example, areas with a high conservation value were designated as the natural preservation district, such as Wangdeungjae wetland and protected area for forest genetic resource conservation, and newly incorporation areas such as Gyebangsan Mountain were designated as the natural environment district (Korea National Park Service 2010).

United States ¹⁾

The cases in which the boundary adjustment in US na-

¹⁾ This study rearranges the results attained from the study, *Feasibility evaluation criteria for national parks and improvement on natural parks policies of national park* (Ministry of Environment 2008).

tional parks have been processed 11 times since combining Sequia and Kings Canyon National Parks in 1980s. The adjustment of national parks was when the initial system of US national park introduced that Sequia National Park was designated in 1890 with an area of 1,631.15 km², and Kings Canyon National Park was designated in 1980 with an area of 1,870.69 km². In 1988, Arches National Park adjusted the park boundary to follow the natural shape and valley, and conform the same geographical unit of an interfact, rather than conventional interfact of artificial characteristics. Furthermore, in the case of Glacier Bay National Park in 1998, 2,770,000 acres were released to construct a small hydroelectric plant because of Gustavus residents' request near the park.

On the other hand, areas near Fall Creek were identified as being suitable for small hydroelectric factory construction. The Alaska state government included Fall Creek areas through exchange with the federal government, and released the area from the park and included wilderness areas with the same value around.

Hawaii Volcanoes National Park included 1,950 acres due to the significance of the wilderness landscape in the west of the park, endangered plant communities, and archaeological sites in 1998. National Park of American Samoa incorporated areas around the Olosega Island, 581 acres of coral areas and 497 acres of tropical rain forests, to attract visitors and protect significant archeological materials and corals.

In 2005, the private ranch within the border of Rocky Mountain National Park was damaged by the park visitors. This area was include in the park and the private ranch was moved to outside of the borders where little impact by visitors. Furthermore, Grand Teton National Park adjusted and extended the areas through residents' donation of Grand Teton Park Subdivision in Lost Creek in 2007.

As above cases, the adjustment of US national parks took place in order to preserve natural characteristics, conserve and manage natural and cultural resources, and provide conveniences for visitors and local residents.

Japan

In Japan, the adjustment of park districts has been rarely conducted with an exception to special cases such as clearness of the boundary areas. Notably, cancellation adjustment of

national parks for regional development is not accepted in principle, but there is an exception to review areas extensions.

The cases are as in the following over the last decade. In 2007, Nikko National park cancelled Oze Swamp, Oze Pond, Hiuchigatake Mountain areas in Oze districts to designate those areas into Oze National Park, attracting a number of tourists due to its great variety of natural landscapes. In 2010, Shiretoko National Park included 3ha to the national park areas (the third class of special zones) in Rausu-cho, Menashi-gun, Hokkaido. This is done to promote visitor enjoyment, preserve natural resources, and deal with the effect on ecosystems such as resolve conflict between visitors and brown bears, and high-density problem of Ezo Sika.

The Ministry of Environment reviewed the project on national/government parks of Japan since 2007. Setonaikai National Park's submarine forest and wetlands were considered as important ecosystems for coastal waters, investigating water qualification for Yamaguchi from 2008 to 2011. As a result, 56.4 ha of the coastal landscape region in the offing of Suooshima, and the largest coral reefs and seaweeds in Japan were added to the national park in 2012 (Ministry of the Environment, Government of Japan 2015).

Method

Data collection and site selection

By using stratified sampling, 37 village areas were selected for study from three different types of parks: 542 cancellation districts after the adjustment of national parks; combinations of park types, including mountain, marine or costal, and historical national parks; and specific use districts, such as natural environment districts, natural village districts, natural preservation districts, massed village districts, and collective facility districts (Table 1).

Surveys for the study were obtained from August 2015 to October 2015 from 37 local residents (head of a village) and 31 park managers of adjustment areas in Korean national parks. For the local residents, the age group of 50s represented the highest percent of sample (40.5%), followed by 32.4% of 60s, and 5.4% of 70 years of age. Among the local residents, the majority of the respondents (86.5%) were from area, and the rest of 13.5% were migrated from

other places.

The length of residence period of the cancellation village was reported that over fifty years (48.6%) have lived in the areas, followed by from 30 to 50 years (27.0%), and less than 30 years (24.3%). For the occupation, agricultural/forestry/ livestock industry was the most frequently reported item (48.6%), followed by self-employed (43.2%), other (5.4%), and company worker (2.7%). Just over one

quarter of respondents (27%) reported an average monthly household income of around US \$1,000-2,000 dollars and \$2,000-3,000 dollars each, followed by \$3,000-4,000 dollars (16.2%), over \$5,000 dollars (13.5%), and less than \$1,000 and \$4,000-5,000 dollars each (8.1%) (Table 2).

Respondents of national park managers were 90.3% male and 9.7% female. The middle aged group 30-49 was the largest percent of the respondents (61.3%), consisted of

Table 1. Study sites (37 cancellation areas)

National park	Cancellation area
Gayasan	Chiin-ri
	Baegun-ri
Gyeongju	Bodeok-dong
Naejangsan	Yaksu-ri
Dadohaehaesang	Yusong-ri
	Singeum-ri
	Jin-ri
	Bi-ri
	Sa-ri
	Sim-ri
	Hongdo-ri
	Cheongnim-ri
	Daehang-ri
Bukhansan	Banghak-dong
	Dobong 1-dong
	Dobong-dong
Jirisan	Hwangjeon-ri
Sobaeksan	Changnak-ri
	Sucheol-ri
Songnisan	Samga-ri
	Mansu-ri
Woraksan	Songgye 1-ri
	Songgye 2-ri
Odaesan	Samsan-ri
Chiaksan	Seongnam-ri
	Bugok-ri
	Hakgok-ri
Taeanhaean	Uihang-ri
	Banggal-ri
	Mohang-ri
Hallyeohaesang	Noryang-ri (Geumnam-myeon)
	Noryang-ri (Seolcheon-myeon)
	Yanga-ri
	Dapo-ri
	Galgot-ri
	Jeogu-ri
Mangchi-ri	

Table 2. Demographic profile of local residents

Item	N	%	
Age	40-49years	8	21.6
	50-59 years	15	40.5
	60-69 years	12	32.4
	Over 70 years	2	5.4
Monthly household income	Under 1 million won	3	8.1
	1-2 million won	10	27.0
	2-3 million won	10	27.0
	3-4 million won	6	16.2
	4-5 million won	3	8.1
Native place	Over 5 million won	5	13.5
	Hometown	32	86.5
	Migration	5	13.5
Residence period	Under 30 years	9	24.3
	30-50 years	10	27.0
	Over 50 years	18	48.6
Job	Agricultural/forestry/ livestock industry	18	48.6
	Self-employed	16	43.2
	Company worker	1	2.7
	Unemployed /other	2	5.4

Table 3. Demographic profile of national park manager

Item	N	%	
Gender	Male	28	90.3
	Female	3	9.7
Age	20-29 years	1	3.2
	30-39 years	10	32.3
	40-49	9	29.0
	Over 50	9	29.0
	Non-response	2	6.5
Employment period	Under 10 years	7	22.6
	10-19 years	6	19.4
	Over 20 years	10	32.3
	Non-response	8	25.8

32.3% of 30s, followed by 29% of 40s, and 5.4% of over 50 years of age. The length of work period of park managers was ranged from 3 to 28 years, reporting over 20 years (32.3%), followed by less than 10 years (22.6%), and 10-19 years (19.4%) (Table 3).

Data analysis

To examine the recognition differences between local residents and national park managers on national park adjustments, the questionnaire elicited information on perceptions of adjustment of national parks, the influence of park adjustment on the local change, satisfaction, and future management strategies. Frequency analysis, cross tab analysis, and t-test were used, and these data were analyzed utilizing SPSS Version 21.0.

Results

Comparison of the perceptions on the adjustment of national parks

Both local residents (72.9%) and national park managers (64.6%) positively perceived the adjustment of national parks, showing the slight recognition differences between them. However, there were differences in the influence of park adjustments after the cancellation between local residents and park managers. Whereas 64.8% of local residents

positively perceived the influence of park adjustment after the cancellation, 38.8% of park managers positively perceived the impacts of it. It is considered that park managers have concerns towards damage to natural resources and habitats for animals and plants, resulting from the development and expansion of cultivation after the cancellation of national parks (Table 4).

Overall change of the areas after the adjustment of national parks

According to the comparison of the overall change of areas after the adjustment cancellation of national parks, the results showed the recognition differences of local residents and park managers regarding the items as follows: recommendation of the adjustment of national parks to other residents, damages to the local environment released from the adjustment, damages to the park landscape adjacent to the areas, improvement of the level of community management, increased conflict between administrative agencies, increased tourism, and lost favor with local residents.

Local residents are more likely than park managers to recommend the adjustment of national parks to other residents and perceived that the adjustment of national parks improves the level of community management, significant at the 1% level. Also, local residents perceived the increase in tourists, significant at the 5% level.

Table 4. Comparison of the perceptions on the adjustment of national parks

Item	Local residents		Park managers		
	N	%	N	%	
Perceptions on the national parks' boundary adjustments	Very negative	6	16.2	-	-
	Negative	-	-	4	12.9
	Neutral	4	10.8	5	16.1
	Positive	12	32.4	14	45.2
	Very positive	15	40.5	6	19.4
	Non-response	-	-	2	6.4
Total	37	100.0	31	100.0	
Further effects resulting from the national parks boundary adjustments	Very negative	2	5.4	-	-
	Negative	3	8.1	6	19.4
	Neutral	4	10.8	7	22.6
	Positive	17	45.9	10	32.3
	Very positive	7	18.9	2	6.5
	Non-response	4	10.8	6	19.2
Total	37	100.0	31	100.0	

On the other hand, national park managers perceived damages to the local environment and the park landscape adjacent to the areas after the adjustment of national parks than local residents, significant at the 1% level. Moreover, park managers perceived increased conflicts between administrative agencies and lost favor with local residents due to the influx of outsiders after the adjustment of national parks, significant at the 5% level.

However, there are no significant differences occurring between local residents and national park managers on national park adjustment associated with nine variables, as fol-

lows: economic revitalization, local residents' quality of life improvement, local residents' income improvement, increases in property prices, hope for reincorporation into the national park's boundary, reinforcement of other regulations, increased support of administrative agencies, increased conflict between residents, and increased waste.

Analysis of the recognition differences of local residents and park managers revealed that local residents were more likely than park managers to have a positive perception of the adjustment of national parks. It seemed this was attributed to expectations of deregulation rather than actual eco-

Table 5. Comparison of the overall change of the areas after the adjustment of national parks

Item		Mean	S.D.	t-value	Sig.
Economic revitalization	Local residents	3.38	1.19	1.128	.264
	Park managers	3.10	.79		
Local residents' quality of life improvement	Local residents	3.25	1.05	1.923	.059
	Park managers	2.80	.79		
Local residents' income improvement	Local residents	3.27	1.04	1.171	.246
	Park managers	3.00	.82		
Increases in property prices	Local residents	3.59	1.07	.496	.621
	Park managers	3.48	.77		
Improvement of the level of community management	Local residents	3.08	1.05	2.891	.005**
	Park managers	2.39	.92		
Increase in tourists	Local residents	3.22	1.11	2.230	.030*
	Park managers	2.73	.64		
Recommend the adjustment of national parks to other residents	Local residents	3.70	1.29	4.073	.000**
	Park managers	2.55	.99		
Hope for reincorporation into the national park's boundary	Local residents	2.03	1.30	-1.664	.101
	Park managers	2.52	1.12		
Reinforcement of other regulation	Local residents	2.54	.99	-.757	.452
	Park managers	2.71	.82		
Increase support of administrative agencies	Local residents	2.92	.604	.633	.529
	Park managers	2.77	.80		
Increase conflict between administrative agencies	Local residents	2.35	1.06	-2.281	.026*
	Park managers	2.90	.91		
Increase conflict between residents	Local residents	2.49	1.24	-.227	.821
	Park managers	2.55	.96		
Lose favor with local residents	Local residents	2.32	1.16	-2.339	.022*
	Park managers	2.94	.96		
Damages to the local environment released from the adjustment	Local residents	2.19	1.02	-3.897	.000**
	Park managers	3.10	.87		
Damages to the park landscape adjacent to the areas	Local residents	2.11	.99	-3.776	.000**
	Park managers	3.06	1.09		
Increased waste	Local residents	2.81	1.24	-1.157	.251
	Park managers	3.13	1.02		

* $p < 0.05$, ** $p < 0.01$.

conomic revitalization and/or increases in property prices (Table 5).

Satisfaction differences between local residents and park managers on the adjustment of national parks

Satisfaction was measured based on a 5-point Likert scale format, for example from 1-very dissatisfied to 5-very satisfied. While the highest percent of local residents (40.6%) indicated the efforts to ease local residents' inconvenience were necessary for the future management direction/policy on the cancellation areas, the highest percent of park managers (61.3%) represented that the conservation of ecosystems is essential (Table 6).

Future management direction/policy on the cancellation and adjacent areas of national parks

The finding of this study also showed slight gaps between local residents and park managers on the future management direction/policy on the cancellation and adjacent areas of national parks. The highest percent of local residents (40.6%) indicated that efforts to ease local residents' inconvenience were necessary for the future management direction/policy on the cancellation areas, followed by linking community with the conservation of ecosystems (27%), and linking community with the activation of leisure activity (24.3%).

Yet, the highest percent of park managers (61.3%) represented linking the community with the conservation of ecosystems among the list of future management direction/policy on the cancellation areas. The next to appear was both 16.1% of linking the community with the activation of leisure activity and efforts to ease local residents' inconvenience.

Analysis showed that local residents put revitalization of the local community first, such as improvement of better quality in living and linking community with activation of leisure activity, while park managers consider conservation of ecosystems as significant. The findings showed the recognition differences between various stakeholders' perspectives (Table 7).

Discussion and Conclusions

This study examined the recognition differences between local residents and national park managers on the boundary adjustment of national parks, which are conducted every 10 years for the purpose of providing basic information for the park management, according to the Natural Parks Act. In this study, a survey with 37 local residents (head of a village) and 31 park managers was conducted, selecting participants from 37 adjustment villages in Korean national parks. The results are listed below.

Both local residents (72.9%) and park managers (64.6%) positively perceived the adjustment of national

Table 6. Comparison of the satisfaction differences between local residents and park managers on the adjustment of national park

Item	Local residents	Mean	S.D.	t-value	Sig.
Satisfaction	Local residents	3.71	1.45	.712	.480
	Park managers	3.48	.99		

Table 7. The recognition differences on future management direction/policy on the cancellation and adjustment areas of national park

Item	Local residents		Park managers	
	N	%	N	%
Linking community with conservation of ecosystem	10	27.0	19	61.3
Linking community with activation of leisure activity	9	24.3	5	16.1
Efforts for conservation of cultural asset	3	8.1	1	3.2
Efforts to ease local residents' inconvenience	15	40.6	5	16.1
Other	-	-	1	3.3
Total	37	100	31	100

parks, showing slight perception differences between them. 64.8% of local residents positively perceived the influence of adjustments; in contrast, 38.8% of park managers positively perceived the impacts of the adjustments. It is considered that park managers have concerns towards the natural resources damage and habitat for animals and plants, resulting from the development and expansion of cultivation after the cancellation of Korean national parks.

When comparing the overall change of areas before and after the adjustment of national parks, the result shows recognition differences of local residents and park managers regarding the items as follows: recommend the adjustment of national parks to other residents, damages on the local environment released from the adjustment, damages on the park landscape adjacent to the areas, improvement of the level of community management, increase conflict between administrative agencies, increase in tourists, and lose favor with local residents.

Local residents were more likely than park managers to recommend the adjustment of national parks to other residents and perceived that the adjustment of national parks improves the level of community management, significant at the 1% level. Also, local residents perceived an increased in tourists, significant at the 5% significance level.

On the other hand, national park managers perceived damages on the local environment and the park landscape adjacent to the areas after the adjustment of national parks than local residents, significant at the 1% level. Moreover, park managers perceived increased conflicts between administrative agencies and lost favor with local residents due to the influx of outsiders after the adjustment of national parks, significant at the 5% significance level.

However, there is no significant difference occurring between local residents and national park managers on national park adjustments associated with the other nine variables as follows: economic revitalization, local residents' quality of life improvement, local residents' income improvement, increases in property prices, hope for reincorporation into the national park's boundary, reinforcement of other regulation, increased support of administrative agencies, increased conflict between residents, and increased waste.

Local residents' and park managers' different perceptions regarding various items, such as recommend the ad-

justment of national parks to other residents ($p < 0.01$), damages on the local environment released from the adjustment ($p < 0.01$), damages on the park landscape adjacent to the areas ($p < 0.01$), improvement of the level of community management ($p < 0.01$), increase conflict between administrative agencies ($p < 0.05$), increase in tourists ($p < 0.05$), and lose favor with local residents ($p < 0.01$).

For the satisfaction differences between local residents and park managers on the adjustment of national parks, local residents' rating of satisfaction scored a mean of 3.71, which was slightly higher than the park managers' mean of 3.48, revealing no significant differences ($t\text{-value} = .712$, $p = .480$).

While the highest percent of local residents (40.6%) indicated that efforts to ease local residents' inconvenience were necessary for the future management direction/policy on the cancellation areas, the highest percent of park managers (61.3%) represented that conservation of ecosystems is essential.

In summary, both local residents and national park managers positively perceived the adjustment of national parks, but significant differences existed between their perspectives regarding the pre-post changes in local communities resulting from adjustment cancellation of national parks. Specifically, the recognition differences among stakeholders are likely to incur every ten years, and continuing studies into the adjustment of national parks is crucial to diminish perception gaps among stakeholders.

Therefore, further research is needed to develop prediction indicators of the cancellation effect in response to the future cancellation areas of national parks through the characteristics of cancellation communities, revitalization of local economy, and environmental changes of local community.

First, indicators for communities' characteristics can list the pre-post changes in local communities resulting from the adjustment cancellation of national parks. The examples can be the building coverage ratio, retention of double regulation, support from local self-government for the infrastructure constructions, and self-management effort for their own communities. Second, indicators for economic revitalization can include criteria, depending on the revitalization of regional development, improvement of local residents' quality of life, local residents' income improvement, increases in real estate prices, and an increased in tourists.

Finally, indicators for economic revitalization can follow-up the management system for communities, consisting of damages to the natural environment, damage to landscapes, and variation in litter and wastewater.

Although the study sites were limited to 37 village areas among the cancellation districts of adjustment of national parks, this study has implications, as there has been very little research conducted on stakeholders' perspectives during the two rounds of adjustments in Korean national parks.

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