

Collaborative and Participatory Model for Urban Forest Management : Case study of Daejisan in Korea

Jae Hyun Kim^{1*}, Mi Sun Park² and Yoo Lee Tae³

¹Department of Environmental Science, Konkuk University, Seoul 143-701, Korea

²Institute of Forest Policy and Nature Conservation, University of Goettingen,
Buesgenweg 3, 37077 Goettingen, Germany

³Department of Forest Resources, Konkuk University, Seoul 143-701, Korea

Abstract : Citizen's involvement in forest decision-making is recently acknowledged as a potential solution to forest management conflicts. Through participation, affected citizens become a part of the decision-making process. This paper focuses on the use of collaborative and participatory model(CPM) for urban forest management. The model, which is exemplified by the Daejisan case in Yongin-si, Gyeonggi-do, Korea, utilizes the collaborative decision-making structure and the gradual level of resident participation in urban forest management. As a result, the committee in the model contributed to building partnerships among different interest groups and then to constructing environmentally compatible urban park. Furthermore, an improvement in the levels of resident participation was manifested in the process. These characteristics of CPM can encourage participation and cooperation among stakeholders and ultimately contribute to realizing sustainable urban forest management.

Key words : urban forest management, collaborative and participatory model(CPM), forest decision-making, conflict management

Introduction

The clash between the limited environment resource and various interests brings out complex environmental problems or conflicts in the modern society. This phenomenon also emerged in Korean urban forest management. Due to Industrialization and urbanization the urban green areas is on the decrease. The 1,340 ha forest areas in 7 Korean metropolitan cities decreased over 4 years, from 1996 to 1999 (Korea Forest Service, 2000). Particularly the large-scale residential land development project diminished large green areas in Seoul. On the other hand the urban population growth brought an increase demand for urban forest. According to a survey on the attitudes of citizen towards urban forest (Seok *et al.*, 2001), 93.9% of responded citizen recognize that urban forest plays an important role in elevating the standard of living. They mainly visit urban forest for recreation, stress relief and promotion of health. Consequently urbanization causes confrontation between different values and objectives on urban forest. However

government inadequately copes with the trend in urban forest management. There are many problems such as the absence of government policy, law and system for urban forest management, the deficiency of budget support and the absence of citizen's participation (Seok *et al.*, 2001).

Since 1990s forest conflicts have occasionally produced in Korea, such as building the second highway in the Gwangju city and a large leisure complex in the Ulsan city (Yoo, 2001). The majority of conflicts concerns decisions on developing and conserving forest areas. Central or local government for development and residents for conservation are opposed to each other. These social phenomena show that it needs an alternative to the traditional top-down approaches and elitist-oriented decision-making strategies in urban forest management. Discussion and decision on forests and forestry can no longer be limited to the three traditional partners: government forestry departments, intergovernmental agencies and forestry professionals(Dembner and Anderson, 1996). The closed structure in forest decision-making is insufficient to manage urban forest. Forest principles adopted in United Nations Conference on Environment and Development (UNCED) in 1992, indicates that participation of interested parties is recommended in the

*Corresponding author

E-mail: Jaehyunk@konkuk.ac.kr

This paper was supported by Konkuk University in 2005.

development, implementation and planning of national forest policies. These parties may include local communities and indigenous groups, industries, labour, non-governmental organizations and individuals, forest dwellers and women (UN, 1992). The relationship between professionals and people/individuals must be seen as partnership rather than hierarchic provider-client relationship. Citizens have a right to know forest decisions affecting their environment and to express their opinions on them. When the right is applied through participatory activities, one-way administration is transferred to two-way administration and the ideal democratic politics is realized. The importance of public participation in forest decision-making, particularly in forest planning is emphasized in some literatures (Gericke *et al.*, 1992; Shindler and Neburka, 1997; Buchy and Hoverman, 2000). In fact public participation in forest management has been practiced in some cases, such as the Regional Forest Program process in Finland (Leskinen, 2004) and Indiana forestry (Fischer *et al.*, 1993).

The purpose of this study is to develop a model for urban forest management through collaboration and participation as a process to solve and reduce problems. Arnstein's eight-rung ladder of participation (1969) is utilized to develop the model. Then, the designed collaborative and participatory model (CPM) was applied to a real case study of Daejisan in Korea, where forest conflicts between exploitation and conservation existed. The results of this case study underline the application and challenges of the CPM model. Ultimately the present study contributes to facilitate planning and implementation of urban forest management through collaboration and participation.

Theoretical Background

1. Theory of Participation

Participation which is recently a major topic of the debate over environment or forest decision-making, involves active involvement of communities. Citizens have both the right and the responsibility to express their opinions in a democratic society. According to Wandersman (1984), citizen participation can be defined as a process in which individuals take part in decision-making in the institutions, programs, and environments that affect them. The levels of participation in policy formulation are measured in terms of power and roles that the different stakeholders have in the decision-making process. Arnstein (1969) differentiated the amount and depth of citizen participation through an eight-rung ladder. The two bottom rungs on this ladder describe the level of non-participation where the real objective is to enable those in power to educate or appease the participants but

not to enable people to participate in planning or conducting programs. Rungs 3 to 5 are the levels of tokenism that allow the have-nots to hear and have a voice. However they lack the power to insure that their views are heeded by the power holders. Placation, which is a higher level of tokenism, allows the have-nots to advise but retain for those in power the continued right to decide. The higher rungs (6 to 8) involve degrees of decision-making. Partnership enables negotiation and engagement in trade-offs with traditional power holders. The levels of delegated power and citizen control express the state where have-not citizens obtain the majority of decision-making seats, or full managerial power. In this model, participation means citizen power is acquired mainly through redistribution of power. Power is central to participatory forestry so that engaging in a participatory process will ultimately change relationship patterns and affect power relationships (Buchy and Hoverman, 2000). Abilities to produce intended effects and to derive benefits are unequally distributed within social and political units. However, participation mutes and reduces asymmetry as a fact of organizational life (Schonfeld, 1975) because it enhances the possibilities for people to have control over their own lives. It also enables the transition from a state of being passive to one of being active. Participation as an empowering process (Simpson and Cala, 2001) ultimately builds community capacity.

Several researches have addressed good public participation process within the arena of environmental decision-making. Webler *et al.* (2001) suggested five social discourses or perspectives about good public participation process. The process should be legitimate, search for common values, realize democratic principles of fairness and equality, promote equal power among all participants and foster responsible leadership. Renn *et al.* (1995) focused their attention on competence and fairness as principles in citizen participation process. In par-

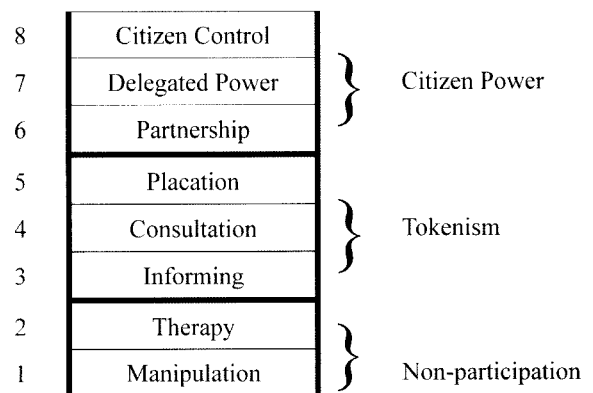


Figure 1. Eight Rungs on a Ladder of Citizen Participation (Arnstein, 1969).

ticipatory democratic theory, participation is consistent with political equality and popular sovereignty. Participation process involves large number of people speaking with many voices. Through participation more people have a chance to have their views taken seriously and to be given a respectful hearing without having their voice overwhelmed by prestige of others (Dietz, 2003). Renn *et al.* (1995) also evaluated participation models with criteria and indicators related to competence and fairness.

2. Collaborative and participatory model (CPM)

In this study the CPM was developed to improve communication among stakeholders and to empower residents in urban forest management. The model has two basic structures. One is a collaborative decision-making structure and the other is a gradual participation process. In urban forest management, it is necessary that various interest groups such as public organization, residents, professionals, NGOs and others communicate with each other. The committee collaboratively participates in the planning, designing and managing urban forest. Through regular meetings, the members of the committee express their opinions and exchange ideas with each other. The committee serves as a vehicle to empower residents so that popular concerns and needs can be voiced during the planning and construction process (Cabarle and Heiner, 1994). The NGO mobilizes the residents and is in closer coordination with them. In particular, it works as a bridge between residents, professionals and the public organizations. Public organizations such as local government provide the financial support and disseminate information on actual progress of the construction. The professionals serve as advisors to provide professional knowledge about ecological management. This active network structure plays an important role as a field or a channel of communication. Gathering information and exchanging opinions in the structure can improve relationship among various groups and contribute further to sustainable urban forest management.

The CPM involves multiple types of resident involvement such as membership to board of committee, program development group and volunteers. Consequently the level of participation improves over time. Various environmental education programs help participants to get ecological knowledge and sensibility. In turn the experiences motivate their next participatory activities to urban forest management.

Research Method

1. The case of Daejisan urban park

Daejisan in this study case is located in Yongin-si, Gyeonggi-do, Korea. It is a small mountainous area surrounded by many high-storied apartment buildings. Daejisan became a hot spot when conflict arose between construction of dwelling houses and green area conservation. The residents, in collaboration with an environmental NGO called Citizen's Movement for Environmental Justice protested against constructing houses by the public corporation - the Korea Land Corporation. A green area conservation movement called 'Making Daejisan alive' was launched in 2000; (1) to stop the construction of dwelling places, (2) to petition for green belt of about one million forest trees and (3) to campaign for 'buy one pyoung (about 3.3 m²) forest area in Daejisan'. As a result, an environmental impact assessment was conducted in 2001. Based on results of the negotiation, it was finally decided that Daejisan was to be developed and operationalized as an urban park for the residents.

With the above-mentioned history of conflict, resident participation in Daejisan was a product of protest against the urbanization plan, as in other many cases. Over the years, citizen's participation in activities related to environment or forest management is mostly aimed at objection over management policies such as the protest movement against building a dam across the Dong River.¹ However, resident's participation in Daejisan developed as a means to solve conflicts beyond a collective protest campaign.

2. Case study

The designed CPM for urban forest management was applied to the Daejisan as a case study. The case study was supported by data from two sources namely documentation and participant observation (Yin, 1994). From 2002 to 2004, the research team as participants observed the regular public meetings, environmental education programs and gatherings for discussion. Various printed materials were collected; 34 records of public meeting, 10 records of field monitoring, 3 annual reports, 8 environmental education program materials and other information pamphlets. The study includes two units of analysis namely the contents of their verbal expression in discussion on planning and managing urban park in Daejisan and the types of participatory activities of various interest groups.

¹The plan of building Dong River dam was a hot issue of 1990s in Korea. Residents were strongly apposed to the plan of government. The dispute between government and residents continued over 10 years. During the dispute the value of ecosystem of Dong River was assessed by many scientists and mass media focused on the issue of Dong River. Finally the plan became to be canceled. Dong River revival movement has evaluated as a successful result of the nature-environmentalism (Kim, 2002).

Results and Discussion

1. Committee: Facilitating ecological forest management and building partnership

As shown in diagram A of Figure 2, the committee consists of various actors: residents (2 persons), NGO (1 person), public corporation (2 persons), and forestry experts from universities (3 persons). It conducted for 3 years 34 regular public meetings and monitored more than 10 times the process of steep slope re-vegetation for multistory forest, which regards as a new ecological technology not only to stop soil erosion but also to recover the vegetation.

The contents of discussion in the meetings are classified into 6 categories: planning, evaluating, examining, informing, suggesting and expressing (Table 1). Through the regular meeting, the members of committee mainly planned their various activities during the urban park construction, such as field monitoring activities, environmental education program etc. In the process of examining the plan of park construction and planning and evaluating their activities, they attempted to solve the problems that were not predicted in the designing phase and subsequently proposed new ideas for ecologically compatible urban park. These new ideas include setting up environmental signs and street-lights powered by solar batteries and paving trails with wood chips. In deed, they were put into practice. The committee actually contributed to constructing ecological urban park.

The meetings also offered a possibility of exchanging information and opinions and promoted communication among various members of the committee. This was confirmed by the representative from public corporation

Table 1. Contents of the public meetings.

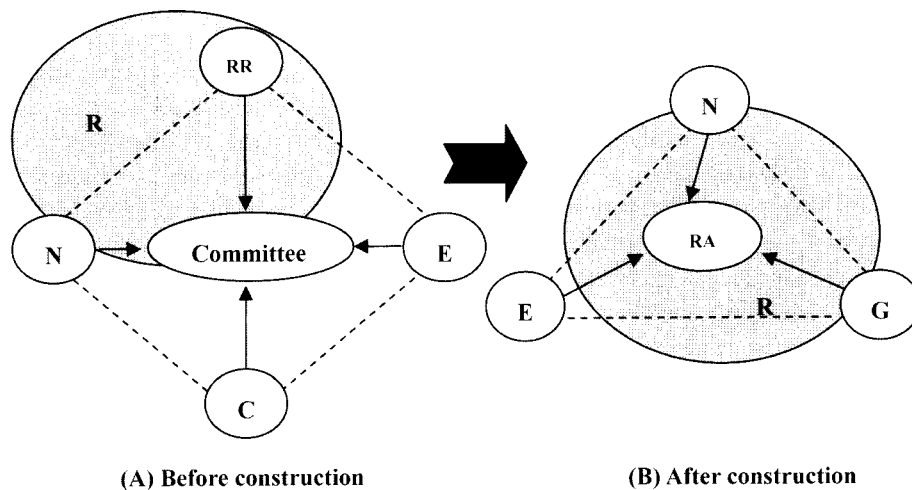
Contents of discussion	The number of public meetings
Planning activities of committee	28
Evaluating activities of committee	6
Examining the plan of the urban park construction	14
Informing news about the urban park	13
Suggesting new plans or ideas	20
Expressing their own opinions or demands	7

in the gathering for discussion on the urban park Daejisan on 18th December 2002 with the statement(Kim et al., 2003):

“At the beginning I felt awkward with you(residents, forestry experts and NGO) together. But over time, I’ve understood other people better and I became to be more interested in the ecological urban park.”

In the model various groups worked together instead of against each other. As a result, the type of resident participation in Daejisan was transformed from a protest movement (negative relationship) into a cooperative activity (positive relationship). This case verifies the possibility of building partnership among different interest groups in forest decision-making.

From the above description, the committee played a substantial role as a real stakeholder in the process of constructing the ecological urban park in Daejisan. However, the Daejisan case study had challenges for the CPM to be applied to. Because the public corporation that provided fund for 3 years was no longer involved in urban forest management, the communicative structure needed to be changed after the end of the construction of



R: Residents, RR: Representatives of Residents, RA: Resident Association
 N: NGO, E: Experts, C: Corporation, G: Government

Figure 2. The collaborative decision-making structure.

Table 2. Resident participation in various activities of urban park construction.

Participation in activities	Pre -Con (2001)	Con-1 (2002)	Con-2 (2003)	Con-3 (2004)
Served as respondents to questionnaires on opinions	■			■
Volunteers on short term basis	■	■	■	■
Serving as members of board committee		■	■	■
Monitoring		■	■	■
Visiting other successful cases of urban parks		■		■
Participation in overall program activities	■	■	■	■
Participated in Environmental interpreters training course			■	
Members of program development working group				■

(pre-con: before urban park construction, con-1, 2, 3: 1, 2, 3 year after the start of urban park construction)

the urban park. On a long-term perspective, the decision-making structure should involve the local government, the city of Yongin which has the capacity of providing sustainable financial support and responsible management as shown in diagram B of Figure 2. In addition, the modified decision-making structure needs an association that has the ability to foster closer cooperation with the residents. In this study case, representatives of the residents as members of the committee took part in the decision-making process. However the representatives had a problem with passing on the contents of discussions to majority of the residents, thus a communication gap between residents and representatives was created. The decision-making structure therefore needs an association where residents are the key players. The structure can reinforce the internal communication among residents. NGO can support the resident association and at the same time serve as a channel between local government and residents.

2. Improvement in participation of residents

As the designing and construction of the Daejisan urban park progressed, the levels of resident participation gradually improved as envisioned by the participatory model (Table 2). Participation of citizens to cope with forest policy evolved over time. In 2001, opinions of the residents on new directions for Daejisan management were gathered through the administration of a questionnaire. Results were then used to decide the construction of the ecological urban park. This level of participation is represented by consultation as shown by the 4th rung of Arnstein's ladder which is classified as tokenism.

During the regular meetings from 2002-2004, representatives of residents expressed their opinions on the design and construction of Daejisan urban park. The level of participation has improved to the partnership as shown by the 6th rung where citizen power now exists. Resident participation includes various activities in Dae-

jisan; cleaning, planting of trees and flowers, paving trails with wood chips and hanging of bird's nests on trees. Despite of various programs intended to induce residents to participate, residents' concern for Daejisan did not increase much even after the success of preventing the construction of dwelling houses. The programs have just temporarily attracted residents to participate. For sustainable urban forest management, a stable system which motivates and supports resident participation is needed. The above-mentioned resident association can build a sense of community and attempt to account for the broad range of participation activity.

Conclusion

As the attention to participatory forestry increases communication strategies also start growing. Both are integral part of decision-making with regard to management of existing forest resources. The case of Daejisan indicates the application of these two approaches. Daejisan urban park development served as an alternative solution to conflicts existing between exploitation and conservation. In most conflict cases, participation in management activities terminated after the protest campaigns. In the case of Daejisan, however, participation was sustained even after the conflict has been resolved. The residents became forest managers and not merely forest users.

Based on the results of the Daejisan study case, CPM can be an effective tool in urban forest management. CPM involves a communicative structure that improves mutual understanding among stakeholders and facilitates ecological development of urban forests. The committee forged partnership among multiple interest groups for urban forest management. The system has greater potential not only for solving conflicts but also for preventing conflicts. The committee has played a major role in the construction of an urban park that is environment-friendly, through regular monitoring and conceptualiza-

tion as well as presentation of new ideas. In practice it had influence over the outcomes. As the case study indicates, for a successful urban forest management the committee needs a public organization which offers a sustainable finance and a resident's association where resident's interests and opinions are collected. In fact, Korean administration has already a good possibility of achieving it. People who form a 'ban(班)', the smallest unit of a neighborhood association meet monthly. If the neighborhood meeting is made good use of, the problems of communication among residents will be reduced.

Secondly, as a consequence, CPM paved the way for gradual improvement in citizen participation to rung 8 of the Arnstein's ladder indicating that of citizen power. The levels of participation in the CPM have gradually evolved over time. It is facilitated by the communicative structure. For sustainable participation in urban forest management, it needs learning program that increase capacity of residents. The committee constructs the program with professional abilities.

In conclusion, the promoted collaborative decision-making structure and gradual participation also evolved to support urban forest management in the real case. Particularly, the committee in place has played a significant role in the success of the CPM. These characteristics of CPM can encourage participation and cooperation among stakeholders and ultimately contribute to realizing sustainable urban forest management.

References

1. Arnstein, S.R. 1969. A Ladder of Citizen Participation. *Journal of the American Planning Association* 35(4): 216-224.
2. Buchy, M. and Hoverman, S. 2000. Understanding public participation in forest planning: a review. *Forest Policy and Economics* 1: 15-25.
3. Cabarle, B. and Heiner, H. 1994. The role of nongovernmental organizations in forestry. *Journal of Forestry* 92 (June): 8-12.
4. Dembner, S.A. and Anderson, J. 1996. Towards forestry information dissemination and communication strategies: new partners, priorities and technologies. *Unasyuva* 184 (Forestry extension). FAO. Available from <http://www.fao.org/forestry/site/unasyuva/en> (2005. 5. 31)
5. Dietz, T. 2003. What is a good decision? Criteria for environmental decision making. *Human Ecology Review* 10(1): 33-39.
6. Fischer, B.C., Pennington, S.G. and Tormoehlen, B. 1993. Public Involvement in Indiana Forestry. *Journal of Forestry* 91(July): 28-31.
7. Gericke, K.L., Sullivan, J. and Wellman, J.D. 1992. *Public Participation in National Forest Planning. Perspectives, procedures, and costs.* *Journal of Forestry* 90 (February): 35-38.
8. Korea Forest Service. 2000. Annual report of forest statistics. 522pp.
9. Kim, J.H., Lee, K.O., Park, M.S. and Kim, H.C. 2003. The Monitoring and resident participation program for Daejisan Urban park construction. Annual report. Korea Land Corporation. Seoul. 68pp.
10. Kim, N.H. 2002. A Critical Analysis on Environmental Movement in Korea: On Dong River Revival Movement. Master thesis. Dong-A University. Busan. 85pp.
11. Leskinen, L.A. 2004. Purposes and challenges of public participation in regional and local forestry in Finland. *Forest Policy and Economics* 6(6): 605-618.
12. Renn, O., Webler, T. and Wiedemann, P.M. 1995. *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse.* Kluwer Academic Publishers. Dordrecht/Boston/London. 381pp.
13. Shindler, B. and Neburka, J. 1997. Public Participation in Forest Planning: 8 Attributes of Success. *Journal of Forestry* 95 (January): 17-19.
14. Seok, H.D., Chang, C.S., Jang, W.H. and Ryu, K.S. 2001. A study on the Urban Forest Management Policy. Research Report R434. Korea Rural Economic Institute. 97pp.
15. Simpson, B. and Cala, C. 2001. Measuring Results in Community Development: An Exploration of Participation and Network Capacity Domains. Available from <http://www.bsimpson.ca/reports.html> (2005. 12. 6)
16. Schonfeld, W.R. 1975. The meaning of democratic participation. *World politics* 28(1): 134-158.
17. United Nations. 1992. Report of the United Nations Conference on Environment and Development: Forest Principles. A/CONF. 151/26 Vol. 3. Available from <http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm> (2005. 4. 29)
18. Wandersman, A. 1984. Citizen participation. pp.337-379. In: Heller, K. (Ed.) *Psychology and Community Change: Challenges of the Future.* The Dorsey Press.
19. Webler, T., Tuler S. and Krueger, R. 2001. What is a good public participation process? Five perspectives from the public. *Environmental Management* 27(3): 435-450.
20. Yin, R.K. 1994. *Case Study Research: Design and Methods.* SAGE. Thousand Oaks/London/New Delhi. 155pp.
21. Yoo, R.H. 2001. A Study on the Urban Forests Management by the Residents Participation. Doctoral thesis. Konkuk University. Seoul. 164pp.