

# Citizen Participation and Network Governance of Regional Water Resources in China

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**Abstract**—The double failure of the local government and the market exist in the regional resources governance of our country. Water resources governance with citizen participation is restrained by awareness, motivation and capacity while multidimensional properties such as economy, society and ecology of water resources determine the necessity of multiple participations in water resource. Citizens as the main body role in participation in governance should be concerned, the paper put forward the citizen participation network governance and hierarchy which is based on individual, organization and across regions. On the basis, combining with the model of network governance, innovation model construction and implement path of our county citizen participation in water resources network management are proposed, including the introduction of informal organization and informal authority involvement, to adjust the incentive structure of local government and innovate to the local citizen participation system.

**Keywords**—citizen participation; area; water resources; network governance

## I. INTRODUCTION

In 2012, “the China’s sustainable development strategy report” pointed out that in the 30-year reform and opening up, China’s GDP increased by 15 times, and the energy consumption has increased by nearly 4 times, the main resource consumption per unit of GDP and the pollutant emission is much higher than developed countries, resources environmental carrying capacity has been unable to meet the requirements of economic development. Facing with serious situations of resource constraints tightening, serious environmental pollution and ecological degradation, the vital interests of every citizen come to water. However, the present water resources vertical management system is difficult to effectively save water resources and protect water environment.

One of the consensus reached in 2002 world summit for sustainable development as the same as one of the basic principles of water resources management is that the water resources development and management should be based on extensive public participation, including different level of water user, interest groups, planning, policy making and managers involvement(Hooper B. 2005). Our country has carried out extensive theoretical and practical researches of public participation in water resources management. With

the environmental legislation and the system construction about social participation in water conservancy in the central file no.1 of 2011, scholars generally aware of the importance of public participation in water resources management and discussed from the necessity of public participation in water resources management, the participation fields, guarantee and ways. The framework of the paper is based on the analysis of system and governance, emphatically from the multiple attributes of water resources, discusses the structure of public participation and its realization ways.

## II. CONSTRAINTS OF CITIZEN PARTICIPATION IN WATER RESOURCES

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### A. Citizen Participation

How to make public participation play correctly and effectively? As an interest coordination mechanism under the circumstance of the intervention of social stratification, public diversified needs and interest groups, public participation emphasizes the citizen’s functions of participation, decision and management in public affairs management(Boyer, 2004). After 50-year practice in environmental protection, resource management, ecological construction and other fields, a relatively mature theory system has formed (Berry JK.2000; ZhangLicheng, WangHong, WangLushang, etal 2005).

The power structure relationship between managers and the persons who are managed in public participation transforms from top-down decision-making management to integrated mode of decision-making and management considering citizens’ democratic rights and interests. The rights relations change comes from the clash and harmonic

of the reality revisionism and citizens egalitarian, by representative democracy toward participation in democracy, namely, public influence the decision making and management that related to its own interests through direct or indirect different levels of participation, rather than via the traditional electoral client to play a role of participation. Participation in democracy has direct positive influence on the decision making process, and representative democracy only has indirect influence (Aidt. T S, Jayasri D, Elena L. 2006).

### B. *The Plights of Citizen Participation*

Multiple agents based on public participation in water resources governance structure is superior to the original single vertical structure, however, in reality, various obstacles make water management with public participation difficult to carry on effectively.

First of all, insufficient understanding in ideology of water resources governance exists in our country citizen participation. BiXia etc.(2010) argue that China's political culture's influence on the political participation behavior is decisive. Traditional ideas of rankings inhibit the improvement of the public participation, and group psychology prevails to free-riding behavior. At the same time, the citizen participation ability is insufficient. In 2008, "the public environmental protection index", guided by the environmental protection administration and formatted and published by the China environmental culture promotion association, shows only 16% of the public knows the free informants' hot-line telephone of environmental problems, with only 9.2% of them dialed it. The public lack of necessary knowledge about environmental protection which makes them can't find the institutionalization and rational way to express their interest demand when facing specific environmental problems.

Second, non-clear participation rights suppress their motivation to participate in water resource management. Because our country of citizens' rights to use, to know, to participate in water resource and environment do not clearly be defined in law, citizens are hard to find the right system security tools for participation in water resources management. Especially the non-clear definition of citizens' environmental right makes it hard for citizens to measure their rights if destroyed, and the loss ascription problem, lack of the system guarantee of the citizen participation makes the insufficient steam of the participation.

Third, the citizens to participate in the governance of water resources affected by rational choice. One is the possibility of a free-rider. Even if the citizen has the definite environmental right, but as for citizens, the natural environment and resource management is a public product, its earnings have stronger positive externalities, so citizens may wait for other citizens to participate in, enjoy the results of them. Two is the cost of collective action. Even if citizens do not choose a lift, but individual citizens to participate in is hard to work. Collective action should be the basis, but its higher cost makes it a kind of transaction cost. According to the Coase Theorem's point of view, as the existence of transaction cost, the public resource governance structure

changes, when citizens organization costs outweigh the possible potential earnings, the collective action momentum will be inhibited. The last one is the insufficient knowledge and information. For citizens, even common understanding is solved, the problem of common knowledge cannot effectively be solved. Common knowledge, that is, citizens can effectively observe the status quo of water resources and master the knowledge of its governance. Under the premise, new coordination costs will not create after collective action. However, because of its macroscopic and microscopic nature, water resources information will generate common knowledge on the premise of transparent after sharing process. Although water resources is becoming paid more and more attention, but the public even the administrative departments do not master sufficient knowledge and information about water resources. No matter the public, administrative departments or authority, they have no a unified access, means and platform to get water resources information. The barrier results in the information gap between stakeholders, affect the recognition degree of the same event. The gap not only reduces the efficiency of transboundary water resources conflict management, but more become a fundamental obstacle in citizen participation of water management.

## III. LEVEL OF CITIZEN PARTICIPATION

### A. *Network Governance*

Although the study of network governance has gone through nearly 20 years, most scholars agree that there is no general theory of network governance (Kilduff and Tsai, 2006; Galaskiewicz, 2007; Keith G. Provan and Amy Fish, 2007), the research level and content depends on the research goal. Table 1 summarizes the definition of network governance of the representative scholars. These definitions emphasize the cooperation pluralism and polytonality between interest agents, and analyze with longitudinal or transverse characterized by network structure.

Water resources network governance model with citizen participation involves multiple individuals, sectors, and multiple geographical areas, and characterized by decision environment complexity, diversification of decision-making, the blurred boundaries of decision-making agents, etc. To simplified the problem, the narrow sense network concept defined by Keith G. Provan(2007) is used: network is a governance structure built by three or more legal nature organizations, and the groups work together not only achieve personal goal, but at the same time to achieve the common goal of the network level. So network governance is a kind of cooperation mechanism, is a way of governance. It is a goal oriented network governance mechanism (Kilduff and Tsai, 2003). In public sector and non-profit organizations which need to take collective action to solve complex problems, this kind of network governance mechanism is particularly important (Provan and Milward, 1995; Teisman and Klijn, 2002; Agranoff and McGuire, 2003; Provan, Isett and Milward, 2003; Imperial, 2005). Objective orientation of network governance shows that participants are only responsible for network level of target, and voluntary to

follow the governance rules and procedures, rather than the interests or power.

TABLE I. THE DEFINITIONS OF NETWORK GOVERNANCE

author	definition
Scharpf and O'Toole	Network management is to reconstruct the network relationship, mobilize the collective action, reach horizontal multilateral coordination
Bruijn and Heuvelhof	Network governance is a goal-oriented problem-solving tool
Klijn	Defined as the use and change of network rules and resources from the perspective of game to start a new game or influence the course of the current game
Agranoff and McGuire	Is managing the elastic structure of the collective efficiency. The controller must have the ability, technology and knowledge that different from single organization
R.Karl and Rethemeyer	Three kinds of model: political management, cooperation management and governance. Network governance is to use the "material-system" resources and social structure resources
Keith G. Provan	Structure relationship made by various natural organizations that have special resources. This structure is a means of governance mechanism than can make special resources play a biggest role

### B. Water resources network governance hierarchical structure

This paper argues that water is kind of quasi public goods, the stakeholders involved in for-profit and non-profit sector, private and public sector, NGO and other organizations and individuals. However in the multiple main body, the lowest participation rate is citizens, barriers to participation is also the biggest. Citizens participation is not just the individual citizens, but includes three levels of individuals, organizations and across regions. Based on this, according the water resources properties, the framework of three levels that water resources network management with public participation is defined.

The first level is the individual level. Single water user gains economic benefits and personal utility from the use of water resources. Behavior agents represented by the private sector pursues the economic profit maximization or individual utility maximization, thus it shows the economic attribute of water resources. And the relationship between stakeholders and water resources is economic and trade relationship on the basis of market. At this level, when water resources conflict, the gain and loss between different agents can be determined and therefore economic means can be used (such as compensation, the water rights trading, etc.).

The second level is organization. When the reason causing the conflict of water resources is only a single, non-

economic factor, this level of governance may be took, namely cooperation between different civil organizations and the public sectors. At this level, different civil organizations and the public sector form unified coordination target and means of governance. A single solution is the goal of collaboration. The criterion of governance efficiency can be the time to solve problem and economic cost, also can measure economic and non-economic means such as social fairness, economic losses, pollution reduce and ecological compensation, etc.

The third level is across the regional level. Functional attributes of water resources is not only limited to the factors of production, but more important to maintain ecological function and sustainability of human and nature. It has ecological attribute. Wilde conflict and cooperation opportunities are implicit in water sharing. Network governance do not achieved limited in individual and organizational level, also need economic system, social system and ecological system, etc. that formed by across regions; meanwhile, to ensure the sustainability, the stakeholders of different generations relate due to water resources. At this level, it is hard to paint the connection between different stakeholders and water resources with a single relationship, and also cannot judge the size of the connection. When water resources conflict of different administrative areas involves multidimensional attributes and multiple main body, it needs to transit to network governance mode. Network management may be a single dimension of cooperation platform; however, the target and approach of public-private partnerships and network governance comprehensively promote and strengthen in the process of network governance (such as "9+2" cooperation zone).

It can be integrated based on the analysis above that the haploid government management will fail owing to the multidimensional water resources. The problem of national system makes the individual citizens participation in water resource management difficult to achieve. As a consequence, the network management of water resources is the basic idea of network citizen participation. In view of the analysis on citizen participation, there are three part of the structure for the citizen participating in the water resources network framework (showed by diagram 1).

The first thing to be mentioned is the level choice of the citizen participation. The water resource is not only multidimensional, but also has multiplicity function. Not all water resources management fits all gradation. The level which the citizen has participated is decided by the multidimensional quality. The citizen needs to make a choice among the individual level, organizational level and cross-region level, which depends on the quality of water resources and the conflict that might be triggered by individual conflict, public conflict or regional conflict.

The second one is the selective organization of citizen participation. There are four features make the influence on the selective organization in the citizen participation. First one is about the rational consideration of selection; in the second part of this paper have already stated that the citizen participation got impact on the rational consideration, which is the outer behavior switch into the inner behavior changed

by the personal benefit-cost rates under the designed system. The second should be the consideration of the organization's cost; citizen could get benefits by the participation, but the organization needs cost on coordination and inspiration. The key character in the selection of organization is the difference of degree of the enclosing, which have direct impact on the citizens' selection about the organization. The third one is about the consistency of goals. The consistency could impact on the citizen participation organizations' frame and size, because of the participants got different goals. The coordination and communication is the method of the consistency in the network, in order to get common cognition and value. The last dimension is the common knowledge and information; it could decrease the cost in the citizen participation in management and organizations' communication. But it is dangerous that the common knowledge and information runoff, large amount of money was need under the less motivation in the inner organization; otherwise, the network management should fail by the huge cost.

The third is the selective goal of citizen participation. The goal of network is the result of the procedure that the entire network's bodies forming the network. The multi-dimensional characteristic, shown like multi-goal selective, is the basic feature of citizen participation in the water resources governance. The difference of the water resources' governance in net-like citizen participation management and vertical government-lead management is the integrated ability of the goals; it is much more emphasis on the multi-goal participation in the citizen participation in water resources governance. In the citizen participation, the main method of the goals forming procedure is equal communication; the citizens' goal comes from the organization's network integration, the organization's goal comes from the coordination. As the audience of the water resources governance, citizen could enjoy the private benefit from the public resources, but also made the personal contributions to the public goal. For the communication method, it is more important in emphasis on the equality, but not the coordination of benefits in bodies. At this time, the goal of the network should be dynamic and continuous; the selective of the networks goal should be under the full consideration of the preference of accumulation of social capital and the equal demands of the generation. Thus, the

goal of citizen participation is fair, dynamic, heritage and continuous.

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