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Research article

Examining Stakeholder Participation in Social Stability Risk Assessment for Mega Projects using Network Analysis

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Abstract: The paper examines stakeholder participation of social stability risk assessment for mega projects in China from a network perspective, with participatory decision-making in a political system discussed. From this analysis, we developed and tested hypotheses on stakeholder participation in social stability risk assessment. Using data obtained through content analysis, we established network on each compulsory procedure in social stability risk assessment to test the hypotheses. Additional impactful factors were discussed using singular value decomposition method in the study. We also provided practical implications and suggestions for policy and practice in the article.

Keywords: *stakeholder participation; social stability risk assessment; affiliation networks; network analysis.*

1. Introduction

Stakeholder participation is a fundamental and critical stage of decisoion-making for mega projects (Erkul et al., 2016). In China, various mega projects have been carried out (Liu et al., 2016b), and many conflicts occurred due to ineffective stakeholder engagement (Liu et al., 2016a; Moore & Warren, 2006). Recent examples include Nu River Dam, Yuanmingyuan Lake Drainage scheme, and Dalian Paraxylene Projects (Liu et al., 2016a; Moore & Warren, 2006). Chinese government began implementing Social Stability Risk Assessment (SSRA) on mega project to provide a framework within which more stakeholder participation can take place (Dong, 2011; Li et al., 2012b, c; Shen, 2014; Zhang & Tong, 2015). However, controversies on effectiveness of stakeholder participation exist (Ma & Du, 2014). Some public representatives note limited opportunities to get involved in SSRA (Liu, 2016) and some critics state the assessment processes are

subject to manipulation by powerful government enterprises, giving grassroots representatives little or no voice (Liao & Liu, 2016; Lu, 2016; Xu, 2013).

The purpose of this research is to examine stakeholder participation in SSRA, building on and contributing to participatory decision making scholarship. Although the issues on this topic have been discussed extensively (Blackstock et al., 2007; Lawrence, 2006; Reed, 2008; Tatenhove & Leroy, 2003), stakeholder participation in SSRA has not been analyzed until relatively recently (Liu & Li, 2013; Liu et al., 2016b). Specially, stakeholder participation in China might be different from that developed within the context of western democracies. In this study, we test the hypotheses on stakeholder participation in SSRA through network analysis, as it provides substantial contribution to methodology of stakeholder participation assessment.

2. Literature Review & Background

Although benefits of stakeholder participation on conflicts identification, mitigation, and resolution (Brunsting et al., 2011; Li et al., 2012a; Poetz, 2011; Yang & Pandey, 2011) are confirmed (Reed, 2007; Reed et al., 2007), effective stakeholder participation is still challenging, especially in a political seting in a developing-nation (Bryson et al., 2015; Fazey et al., 2010; Thabrew & Ries, 2009). Some attempts were made to discuss the effectiveness of stakeholder participation in policy and decision making (Bardach, 1998; Beierle, 2002; Blackstock et al., 2007; Brody, 2003), with some evaluation methods proposed (Beierle, 2002; Rowe & Frewer, 2000). Chess and Purcell (1999) evaluated the extent to which "process" and "outcome" goals were achieved. Blackstock et al. (2007) argued that the evaluation should be participatory with stakeholders selecting and applying the evaluation criteria. Koontz (2005) evaluated the extent to which stakeholder participation influenced the local farm preservation policy. Sultana and Abeyasekera (2008) claimed participation led to greater uptake of conservation measures and fewer conflicts. Beierle (2002) concluded that more intensive participatory processes are more likely to yield higher quality decisions. Scholars also stated that the criteria should be satisfied for effective stakeholder participation (Fiorino, 1990; Smith et al., 1997), and developed various evaluation criteria (Brody, 2003; Chase et al., 2004). Criteria-based evaluation is undoubtedly valuable (Rowe & Frewer, 2004a), but challenges still exist. Most of the criteria are procedural rather than substantive (Middendorf & Busch, 1997) in that they relate to what makes for effective processes rather than how to measure effective outcomes.

On the other hand, networks have been used as an alternative perspective for stakeholder analysis and organizational coordination (Aaltonen et al., 2010; Abbasi & Kapucu, 2016; Cameron et al., 2008; Prell et al., 2009). From this per-

spective, Gattringer et al. (2014) discussed collaboration among stakeholders. Pira et al. (2016) presented an Agent-Based Model to mimic participatory decision-making process where stakeholders, linked by social network, exchange opinions in order to find a shared and transitive collective decision.

3. Theoretical Insights and Hypotheses

In the research, stakeholder participation is defined as a process where stakeholders (individuals, groups, and organizations) take active roles in making decisions affecting them (Rowe & Frewer, 2004b; Wandersman, 1981). Since stakeholders have different perceptions on the problem definition, policy outcmes, and potential solutions (Kapucu, & Garayev, 2011; Koppenjan & Klijn, 2010), collaborations and coordinations are required, leading to the need for stakeholders to operate in the context of networks (Marin & Mayntz, 1991; Marsh & Rhodes, 1992).

In Chinese governance structure , decision-making on mega project also requires coordination among various stakeholders (agencies dispersed over various government levels and sectors, state-owned companies, private business, citizens, and activists) in interactive processes (Li et al., 2012b, c; Mertha, 2009; Weber & Khademian, 2008). Network is defined as "structures of interdependence involving multiple organizations or parts therof" (O'Toole, 1997). Network analysis can be applied in examining the stakeholder participation in decision making as a theoretical framework as well as a method (Kapucu et al., 2014; Koppenjan & Klijn, 2010). The network perspective, despite cultural and institutional differences, was applied in this study as a framework (Liu et al., 2016a; Zheng et al., 2010). Social Network Analysis (SNA) was applied as method for stakeholder engagement analysis (Borgatti et al., 2012; Harshaw & Tindall, 2005) in the context of SSRA, as this method can test the hypotheses and facilitate discussions on improving stakeholder participation.

According to the guidance released by central authorities (General Office of Chinese Communist Party Central Committee, 2015), the procedures for stakeholder participation in SSRA can be structured in early program development and late implementation stages. The early stage includes the following three procedures:

(1) *Organization and Coordination*: Stakeholders (or their representatives) prepare the propsals (issues) for discussion, determine the agenda and involved representatives collaboratively.

(2) *Collaborative Decision*: Stakeholders (or their representatives) determine the level of social stability risk and make decision (the mega project can be approved or not) accordingly.

(3) *Supervision and Guidance*: Stakeholders (or their representatives) supervise and guide the participatory processes to ensure the assessment is conducted

legitimately.

The one procedure included in late stage is *Accountability*. Accountability is used as a feedback procedure, stakeholders (or their representatives) observe outcomes of the decisions, learn lessons and identify the organizations or individuals who should be held accountable in case of wrong decision (see Figure 1).

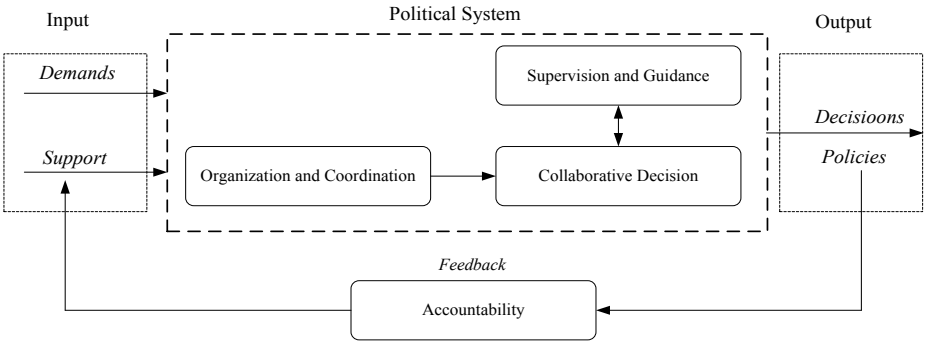


Figure 1. Process of Stakeholder Participation in SSRA

In the figure above, we view the successive procedures as political system. According to Easton (1979), the system should manage to maintain a steady flow of support. The demands and supports are transformed into issues through *Organization and Coordination.* Then the issues are discussed through specific procedures (*Collaborative Decision*, *Supervision and Guidance)* to form authoritative decisions. More importantly, dynamic decision-making tasks arise during project life circle and a sequential decisions are required to make. Each decision affects the circumstances or state in which later decisions are made (Mackinnon & Wearing, 1985). Therefore, the decision tasks have the following characteristics: (a) they require a series of decisions rather than a single decision, (b) these decisions are interdependent and (c) the environment changes as a consequence of both the decision-makers actions as well as other external factors (Edwards, 1962; Erkul et al., 2016). So, such tasks involve "circular causality" (Diehl & Sterman, 1995). Therefore, a feedback loop is involved and play important role, ensuring that the decision can be adjusted to adapt with "environment" (Easton, 1957).

To achieve effective and efficient feedbacks, stakeholder participation in SSRA should be holistic and continual throughout the whole participatory process (Reed et al., 2006; Stewart et al., 1984). So, stakeholder participation is required to be integrated with the project circle (Sequeira, 2010). Aside from engagement in early stage (Mazmanian & Nienaber, 1979; Reed et al., 2006; Stewart et al.,

1984), stakeholders may also be involved in monitoring and evaluating outcomes of decisions (Estrella & Gaventa, 2000). We propose the following hypothesis:

Hypothesis 1: *Stakeholders participation varies in different procedures, including Organization and Coordination, Collaborative Decision, Supervision and Guidance, Accountability.*

Since a long-term participatory process (Gunderson & Holling, 2002) is involved in SSRA, iterative and two-way learning between participants is critical (Chase et al., 2004; Johnson et al., 2004). Stakeholders involved in different stages may differ and the real outcomes of decisions will emerge after some time, so the stakeholders / decision makers must respond appropriately to the policy results of preceding procedures (Kleinmuntz, 1985; Kleinmuntz & Schkade, 1993). In practical terms, it is critical for stakeholders of high participation levels to be active from early to late stage. Hence, stakeholders/decision makers must occupy core positions in early stage and understand the importance of participation in late stages. Therefore, we propose the following hypothesis:

Hypothesis 2: *Compared to stakeholders at peripheral positions, stakeholders at core positions in early stage might not hold high participation level in late stage (i.e., accountability).*

Additionally, we discuss issues of SSRA in the context of Chinese political system (Lawrence & Martin, 2012). Grassroots organizations have limited voice in Chinese traditional hierarchical governance structure (Mertha, 2009). This may make it challenging to motivate grassroots representatives to engage in SSRA, especially when they are asked to respond to proposals they perceive are finalized (Zhu et al., 2014). Given this background, we examine whether the high-level grassroots participation in decision-making on mega project has been achieved in SSRA, as seen in the following proposed hypothesis:

Hypothesis 3: *High-level grassroots participation in decision-making on mega projects has been observed in SSRA.*

The Chinese governance structure is still characterized as hierarchical and centralized (Bruce et al., 2009; Larson & Soto, 2008). Following a top-down mode (Larson et al., 2007), higher level governments may have adequate authority and mobilization capacities to achieve more intensive participatory decision (Pohlner, 2016). On the other hand, the gradual opening of spaces for participation from the bottom up has emerged and challenges the traditional mode (Tan & Zhou, 2015), and may lead to active grassroots participation (Blomquist et al., 2010; Larson & Soto, 2008). Given this context and our research interests in SSRA, we examined whether higher level governments can achieve more intensive stakeholder participation than grassroots governments in SSRA with the following hypothesis:

Hypothesis 4: *Compared to local levels, higher levels governments can achieve more intensive stakeholder participation in SSRA.*

4. Design

Using "actor" to denote stakeholder (or representative), we applied affiliation network method for network establishment (Borgatti & Everett, 1997; Hu et al., 2014). A link between two actors was identified if they were engaged in identical procedure of an SSRA event. Then, we established four networks based on the four successive compulsory procedures, including Organization and Coordination Network (OC-N), Collaborative Decision Network (CD-N), Supervision and Guidance Network (SG-N), and Accountability Network (AC-N).

First, we calculated index on each network, including density, average geodesic distances, compactness and the number of ties, to achieve comparisons on activeness of the networks (*Hypothesis* 1) with some powerful and important actors discussed using centrality measures. Second, we measured actors' participation levels in different procedures, indicated by different networks, through core/periphery structure analyses. Selecting the actors occupying core positions as ones with high participation levels in each network, we compared their participation levels in different stages (*Hypothesis* 2). Following similar methods, we also discussed grassroots participation level (*Hypothesis* 3). Third, we analyzed core/periphery structures of SSRA events in the networks and SSRA events occupying core positions were identified as the ones with more intensive stakeholder participation. Considering the levels (higher level or local level) of governments in charge, we compared intensiveness of stakeholder participations achieved by governments of different levels (*Hypothesis* 4). We also discussed active network using Singular Value Decomposition (SVD) method with influential factors concluded. UCINET was the software used for network analysis (Borgatti et al., 2012).

5. Data Collection

Focusing on SSRA events (Appendix 1) in the city of Xi'an, a metropolis in the central area of China, we conducted content analyses based on Report on SSRA(R-SSRA). As archived official document, R-SSRA records the complete and detailed information on each SSRA event, e.g., all the involved stakeholders (or their representatives). Reviewing R-SSRA, we identified the stakeholders involved in each procedure of every SSRA event. To exemplify the format of collected data, we show the data on a SSRA event (*Land Requisition Project Mega for Hua Neng Power Plant Construction*) in Table 1.

Table 1. Data on *Land Requisition Project Mega for Hua Neng Power Plant Construction*

Procedure	Involved Stakeholders
Organization and Coordination	PDR, MDI, JUB, COC
Collaborative Decision	PDR, MDI, EPA, MPA, HCA, DRA, SMA, HRA, APS, PDT, JBU, RAC
Supervision and Guidance	HCA, SMA, JBU, COC
Accountability	SBC, SMA, JBU

Note: see Appendix 2 for abbreviations.

The applied method can be seen in Figure 2.

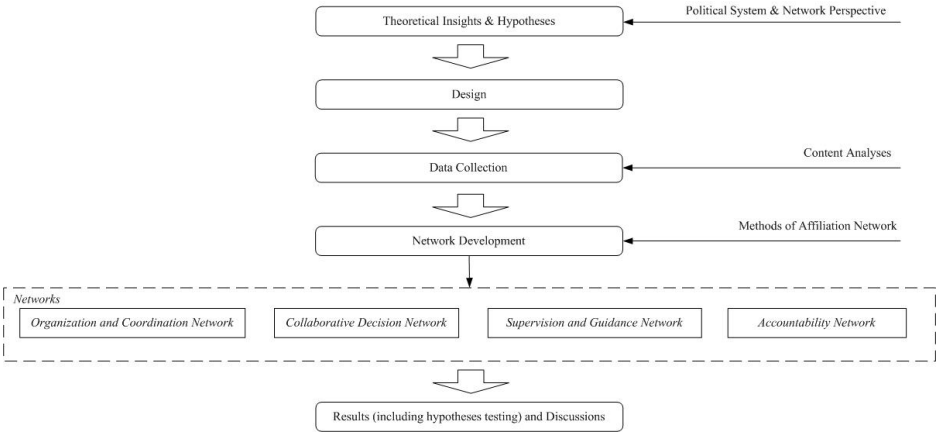
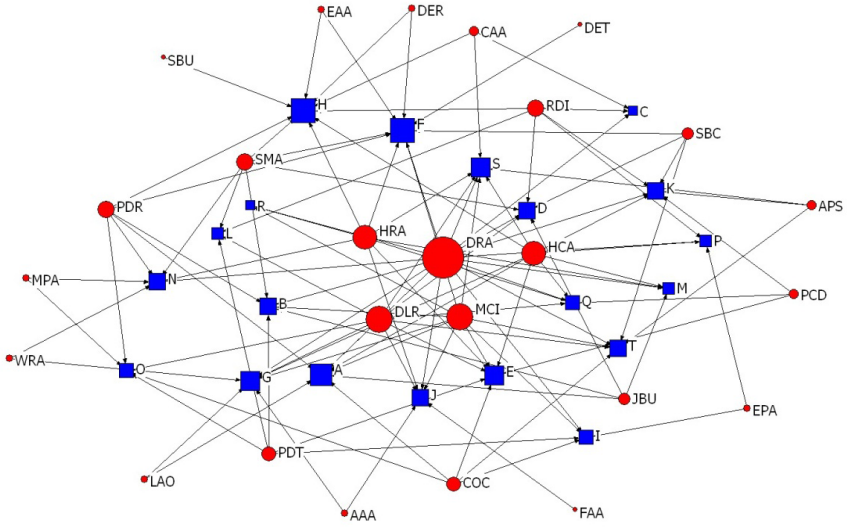


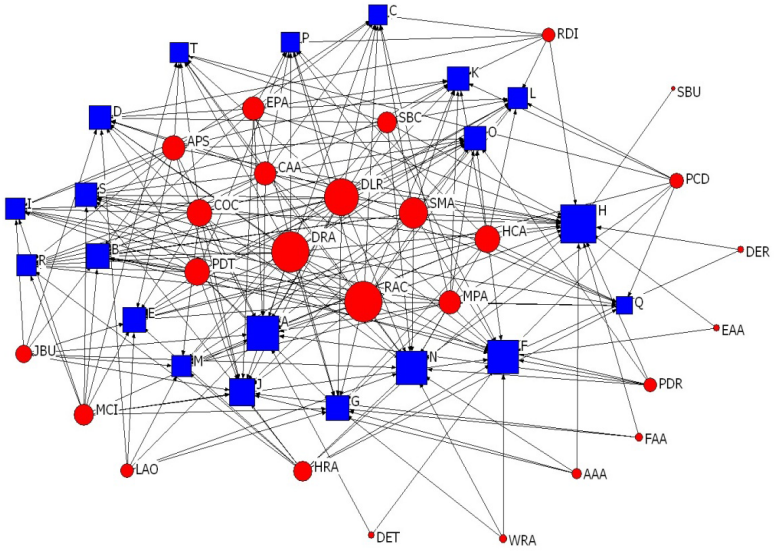
Figure 2. Method Applied in the Research

Results and Discussions

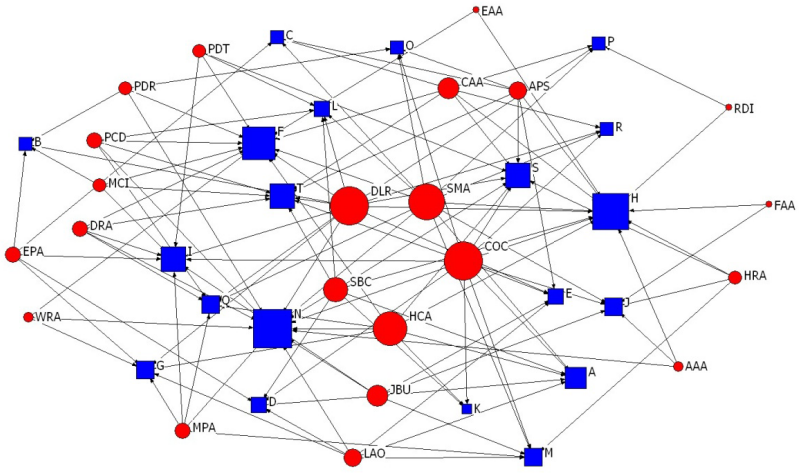
Four networks, including OC-N, CD-N, SG-N, and AC-N, are shown in Figure 3.



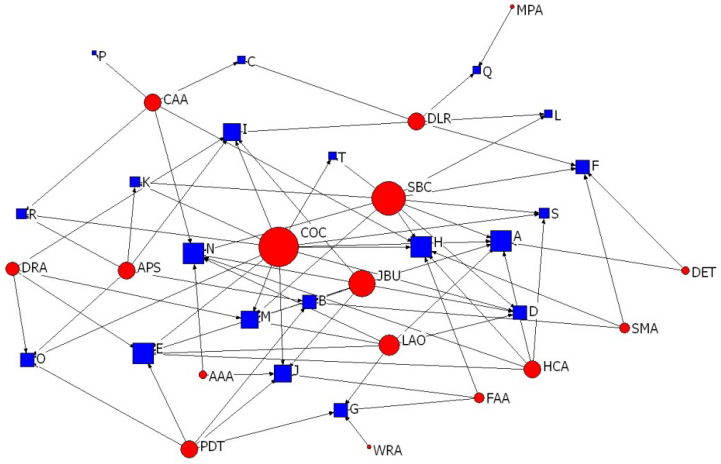
(a) OC-N



(b) CD-N



(c) SG-N



(d) AC-N

Figure 3. Networks on procedures in SSRA

Note: see Appendix 1 and 2 for codes and abbreviations

Index on each network are shown in Table 2. The results indicate that CD-N is much more active than other ones in terms of the highest density, shortest average geodesic distances, highest compactness and the most number of ties. It is hard to say that stakeholder participations in different stages are equally active; therefore, *Hypothesis* 1was supported.

Table 2. The Index on Networks

Network	Density	Average Geodesic Distance	Compactness	Number of Ties
OC-N	0.2320	1.450	0.775	116
CD-N	0.4538	1.055	0.972	236
SG-N	0.2688	1.221	0.815	129
AC-N	0.2406	1.467	0.790	77

Subsequently, we used centrality measures to identify powerful and important actors, as shown in Table 3.

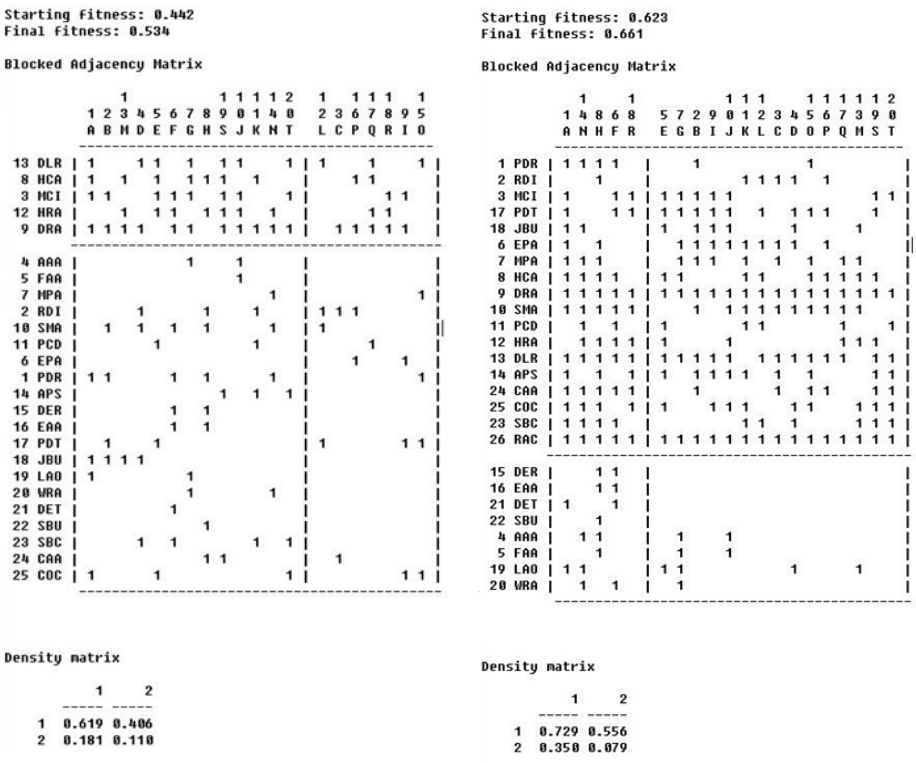
Table 3. Centrality of Networks

Actor	OC-N	CD-N	SG-N	AC-N
PDR	0.300	0.300	0.200	N/A
RDI	0.300	0.300	0.100	N/A
MCI	0.500	0.500	0.200	N/A
AAA	0.100	0.200	0.150	0.100
FAA	0.050	0.150	0.100	0.150
EPA	0.100	0.550	0.300	N/A
MPA	0.100	0.550	0.250	0.050
HCA	0.450	0.650	0.400	0.250
DRA	0.800	1.000	0.250	0.200
SMA	0.300	0.750	0.600	0.150
PCD	0.150	0.350	0.250	N/A
HRA	0.450	0.450	0.200	N/A
DLR	0.500	0.900	0.650	0.250
APS	0.150	0.600	0.300	0.250
DER	0.100	0.100	N/A	N/A
EAA	0.100	0.100	0.100	N/A
PDT	0.250	0.650	0.200	0.250
JBU	0.200	0.400	0.350	0.400
LAO	0.100	0.300	0.300	0.300
WRA	0.100	0.150	0.150	0.050
DET	0.050	0.100	N/A	0.100
SBU	0.050	0.050	N/A	N/A
SBC	0.200	0.500	0.400	0.500
CAA	0.150	0.520	0.350	0.250
COC	0.250	0.650	0.650	0.600
RAC	N/A	1.000	N/A	N/A

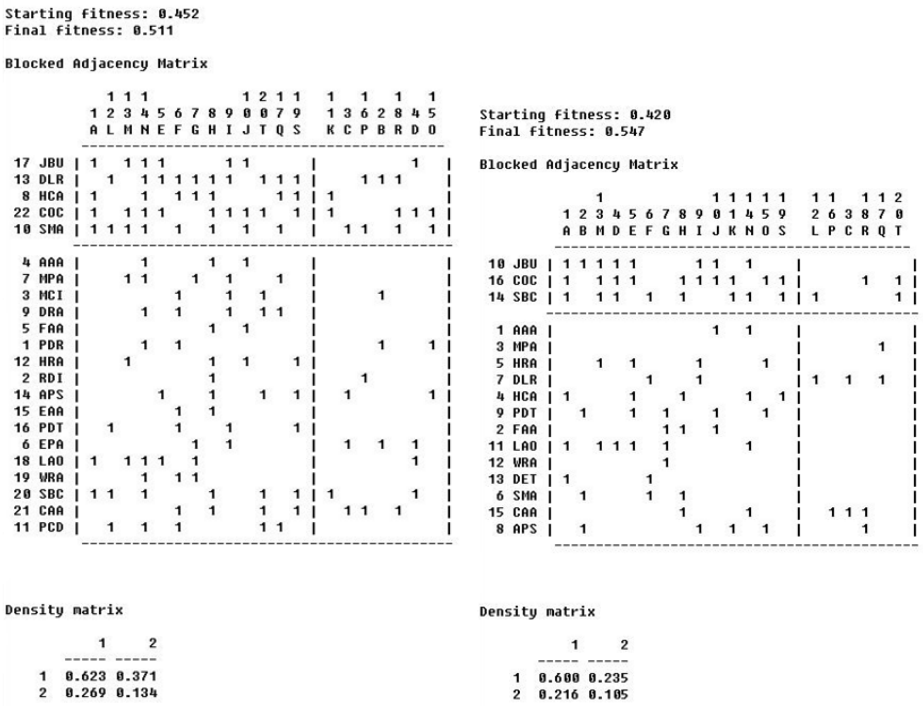
Note: see Appendix 2 for abbreviations. The top ten actors identified according to their degree of centrality measures in each network are marked as grey.

We notice that HCA and DLR possessing land resources are the most influential actors in all the networks. As an authoritative coordinating agency, COC also plays an important role in all the networks. COC is as not only an agency in charge of public resources coordination, but also the main issuer of official docu-

ments on mega project approval and regulation. Therefore, authorities' coordination, supports and approvals are critical besides for physical resources. Furthermore, we examined the extent to which stakeholders get involved in SSRA events through core/periphery structure analyses (Borgatti & Everett, 2000, p. 375), as shown in Figure 4. Based on the results, we can clarify positions of actors in each network, as shown in Table 4.



(a) OC-N (b) CD-N



(c) SG-N (d) AC-N

Figure 4. Core/Periphery Structures of Networks
Note: see Appendix 1 and 2 for codes and abbreviations

Table 4. Positions of Actors in Networks

Actor	OC-N	CD-N	SG-N	AC-N
PDR	×	√	×	N/A
RDI	×	√	×	N/A
MCI	√	√	×	N/A
AAA	×	×	×	×
FAA	×	×	×	×
EPA	×	√	×	N/A
MPA	×	√	×	×
HCA	√	√	√	×
DRA	√	√	×	N/A
SMA	×	√	√	×
PCD	×	√	×	N/A
HRA	√	√	×	×
DLR	√	√	√	×
APS	×	√	×	×
DER	×	×	N/A	N/A
EAA	×	×	×	N/A
PDT	×	√	×	×
JBU	×	√	√	√
LAO	×	×	×	×
WRA	×	×	×	×
DET	×	×	N/A	×
SBU	×	×	N/A	N/A
SBC	×	√	×	√
CAA	×	√	×	×
COC	×	√	√	√
RAC	N/A	√	N/A	N/A

Note: see Appendix 2 for abbreviations. √indicates that the actor is in core position and ×indicates that the actor is in periphery position.

HCA and DLR occupy core positions in OC-N, CD-N and SG-N, while JBU and COC occupy core positions in CD-N, SG-N and AC-N. The fact that HCA and DLR play central roles in OC-N, CD-N and SG-N suggest the two actors play central roles in assessing social stability risk. Yet, JBU and COC are core actors in AC-N whereas HCA and DLR occupy peripheral positions. This suggests that it is difficult for the actors at core positions in early stage to hold high participation level in late stage. So, *Hypothesis* 2 was supported, revealing fragmentation or gaps (Zhu, 2012) existing in the feedback loop. Some actors (e.g., HCA and DLR) playing important roles in early stage occupy peripheral positions in the late stage. And it is difficult for them to see the real outcomes of the decisions and respond to the environment appropriately.

MCI, DRA, SMA, HRA and SBC are also important actors, because they occupy core positions in two networks. RAC, representing grassroots representatives, has the highest centrality scores and occupies core position in CD-N (see details in Table 3 and 4). But grassroots representatives only get involved in one network (CD-N) and cannot be engaged in any other important or core work, e.g., agenda setting. This suggests their involvements are limited. Although grassroots representatives have chances to get involved in collaborative decision, their absences in other networks reduce the participation level. Therefore, hypothesis 3 was partially supported.

Moreover, core/periphery structures on SSRA events are also demonstrated, as shown in Table 5.

Table 5. Positions of SSRA Events in Networks

SSRA Event	OC-N	CD-N	SG-N	AC-N
A	√	√	√	√
B	√	×	×	√
C	×	×	×	×
D	√	×	×	√
E	√	×	√	√
F	√	√	√	√
G	√	×	√	√
H	√	√	√	√
I	×	×	√	√
J	√	×	√	√
K	√	×	×	√
L	×	×	√	×
M	√	×	√	√
N	√	√	√	√
O	×	×	×	√
P	×	×	×	×
Q	×	×	√	×
R	×	√	×	×
S	√	×	√	√
T	√	×	√	×

Note: see Appendix 1 for codes. √indicates that the event is in core position and ×indicates that the event is in periphery position.

We observed that A, F, H and N occupy core positions in all the networks. It suggests that more intensive stakeholder participations were achieved in the four SSRA events. Meanwhile, C and P are in periphery positions in all the networks indicating stakeholder participations in the two SSRA events were the least intensive. A, F, H and N are in the charge of higher-level governments (typically ministries in central government or departments in provincial governments), while C and P are in the charge of county governments. Higher-level governments have more authority, and can mobilize enough resources to achieve more intensive stakeholder participation. So, hypothesis 4 was supported. Since mega

projects can promote local economic development and employement, grassroots governments may actively apply for the projects and compete with other ones. In terms of grassroots governments, the economic benefits of mega peojetcs usually outweigh SSRA, which aims at social conflicts resolution rather than economic development, in the current government performance evaluation. In practical terms, the chosen representatives seldom truly represent the affected communities. And the end results are usually that decisions can't meet the demands of the affected people, casuing local oppositions to mega projects.

Accordingly, we show the results of hypotheses testing in Table 6.

Table 6. Results of Hypotheses Testing

Hypothesis	Result
Hypothesis 1	Supported
Hypothesis 2	Supported
Hypothesis 3	Partially Supported
Hypothesis 4	Supported

Since CD-N is the most active network, in which grassroots representatives get involved, we conducted further discussions based on it. We explored the factors contributing to collaborative decision though SVD with the singular values shown in Table 7.

Table 7. Singular Values Derived in CD-N

Factor	Value	Percent	CUM %	Ratio	PRE	CUM PRE
1	12.204	26.0	26.0	3.171	0.325	0.325
2	3.848	8.2	34.2	1.068	0.115	0.440
3	3.602	7.7	41.9	1.106	0.101	0.541
4	3.257	6.9	48.8	1.107	0.082	0.623
5	2.942	6.3	55.1	1.007	0.067	0.690
6	2.922	6.2	61.3	1.111	0.066	0.756
7	2.630	5.6	66.9	1.099	0.054	0.810
8	2.394	5.1	72.0	1.093	0.044	0.854
9	2.191	4.7	76.6	1.150	0.037	0.891
10	1.905	4.1	80.7	1.081	0.028	0.919
11	1.762	3.8	84.5	1.269	0.024	0.943
12	1.388	3.0	87.4	1.115	0.015	0.958
13	1.245	2.7	90.1	1.150	0.012	0.970
14	1.083	2.3	92.4	1.092	0.009	0.980
15	0.992	2.1	94.5	1.170	0.008	0.987
16	0.848	1.8	96.3	1.290	0.006	0.993
17	0.657	1.4	97.7	1.144	0.003	0.996
18	0.574	1.2	98.9	1.425	0.003	0.999
19	0.403	0.9	99.8	3.831	0.001	1.000
20	0.105	0.2	100.0	N/A	0.000	1.000

Note: CUM % represents Accumulative Percent, PRE represents Percent of Reduced Error and CUM PRE represents Accumulative Percent of Reduced Error.

The accumulative percent of reduced error (54.1%) suggests the top three factors can be selected as main ones, which are summarized and discussed based on varimax loadings (see details in Table 8).

Table 8. The Loadings for the Top Three Factors

Actor in CD-N	Factor 1	Factor 2	Factor 3
PDR	0.129	0.147	0.081
RDI	0.105	0.412	-0.441
MCI	0.187	0.429	0.263
AAA	0.081	0.069	0.030
FAA	0.059	-0.020	-0.055
EPA	0.202	-0.090	0.531
MPA	0.204	0.141	-0.179
HCA	0.241	0.345	0.433
DRA	0.362	-0.012	-0.042
SMA	0.277	0.238	-0.219
PCD	0.123	0.245	0.215
HRA	0.169	0.112	0.408
DLR	0.330	-0.131	-0.018
APS	0.225	-0.325	-0.071
DER	0.044	0.153	0.058
EAA	0.044	0.153	0.058
PDT	0.240	-0.343	-0.010
JBU	0.154	-0.200	0.058
LAO	0.115	0.034	0.158
WRA	0.058	0.135	0.177
DET	0.045	0.040	0.103
SBU	0.024	0.086	-0.043
SBC	0.190	0.309	0.115
CAA	0.211	0.029	0.033
COC	0.245	-0.124	0.165
RAC	0.362	-0.012	-0.042

Note: see Appendix 2 for abbreviations.

In terms of factor 1, HCA (0.241), RAC (0.362), SMA (0.277), DLR (0.330) and PDT (0.240) are listed as top actors. Since they are all governmental agencies, whose authorities are important to support stakeholder participation, we define factor 1 as "authority". RDI (0.412) and MCI (0.429) can be listed as top actors in terms of factor 2. Acting as the third-party institutions, RDI and MCI play more and more important roles following outsourcing contracts with authorities. They conduct data analysis, stakeholder interviews using professional techniques to improve the effectiveness of stakeholder participation. Hence, we define this factor as "the third-party institutions". EPA (0.531), HRA (0.408) and HCA (0.433) are listed as top ones in terms of factor 3. They usually focus on the supporting measures, e.g., environmental protection, employment, relocation etc. Therefore, we define the factor as "supporting measures". Overall, the factors contributing to collaborative decision include Authority, Third-Party Institutions (TPI) and Supporting Measures.

In the current context of China, authority is still vital to advance stakeholder participation. Stakeholder participation in SSRA is more participatory decision-making activity, which is dominated by government and involves various stakeholders versus autonomous actions of citizens. Recently, more businesses in SSRA have been outsourced to TPI, which works as participation facilitator (Marks, 2008). Highly skilled TPIs are essential to improve effectiveness of stakeholder participation in SSRA. This also implies that more social/market forces are being introduced to this area. Factor of "supporting measures" suggests that living needs of affected populations should be the a core issue in SSRA.

6. Conclusion

Using data collected through content analysis, we discussed some issues on stakeholder participation in SSRA, with hypotheses tested. Overall, we found that different types of stakeholder participations are not conducted and developed evenly in SSRA. Minority actors, which possess critical resources or are in charge of public resources coordination, are the most influential actors in all the networks.

Moreover, we observed some fragmentations or gaps in the participatory process. First, it is difficult for the actors at core positions in early stage to hold high participation level in late stage. This reveals the barriers for effective learning and accountability. Second, grassroots representatives have get involved actively, although only in CD-N. Third, we observed that the higher-level governments can achieve more intensive stakeholder participation in SSRA due to possessing more authorities and resources. Yet, grassroots governments usually face much more actual problems, such as weak institutions, insufficient funds, and compet-

ing interests for the mega projects. So, stakeholder participation is always ignored intentionally or unintentionally at grassroots level.

Subsequently, we examined CD-N, the most active network, through identifying main influential factors through SVD. The results show "authority" is essential for effective stakeholder participation. Hence, we suggest SSRA is a government-led consulation with stakeholders rather than autonomous actions of citizens. This is very different from stakeholder participation in western democracies. The results on TPI also highlighted the importance of participation facilitator.

Network analysis offers a unique opportunity to study the stakeholder participation in SSRA. Howerever, it does not provide detailed explanation of the cases we observed. The next research step is to conduct an in-depth intervoews to understand network formation and dynamic changes. And future research should focus on solutions to facilitate stakeholder participation, e.g., SSRA facilitated by TPIs.

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Appendices

Appendix 1 SSRA Events Used for the Research

Code	SSRA Event	Government in Charge	Time for Implementation
A	Land Requisition Project Mega for Hua Neng Power Plant Construction	Central Government	2015.11
B	Land Requisition for Natural Gas Conduit Construction	City Government	2015.8
C	Residents Displacement and Resettlement for Electronic Facilities Construction (North)	County Government	2015.7
D	Residents Displacement and Resettlement for Electronic Facilities Construction (South)	County Government	2015.6
E	Land Requisition and Residents Displacement for Railway Construction	City Government	2015.5
F	Residential Area Reconstruction Project (East)	Provincial Government	2015.4
G	Land Requisition and Residents Displacement for Modern Agriculture Park Project	City Government	2015.4

H	Land Requisition and Residents Displacement for Modern Circular Economy Park Project	Central Government	2015.3
I	Land Requisition and Residents Displacement for Modern Agriculture Park Project(West)	City Government	2015.1
J	Land Requisition and Residents Displacement for Reservoir Project	City Government	2015.1
K	Land Requisition and Residents Displacement for the National Road Project	City Government	2014.11
L	Land Requisition and Residents Displacement for National Granary Project(North)	City Government	2014.6
M	Land Requisition and Residents Displacement for Cargo Railway Project	City Government	2014.5
N	Land Requisition and Residents Displacement for Hydropower Plant Project	Central Government	2014.2
O	Land Requisition for Natural Gas Conduit Transportation and Distribution	City Government	2013.11

P	Land Requisition for Natural Gas Conduits Connection	County Government	2013.4
Q	Land Requisition for Power Sub-station Project (East)	City Government	2013.4
R	Land Requisition for Power Sub-station Project(South)	City Government	2013.3
S	Land Requisition and Residents Displacement for National Granary Project(South)	City Government	2012.8
T	Land Requisition and Residents Displacement for Metro Project (Line No.1)	City Government	2011.10

Appendix 2 Involved Actors Common to SSRA Events

Actor	Abbreviation
Project Developer	PDR
Research & Development Institution	RDI
Management Consultancy Institution	MCI
Agriculture Administrative Agency	AAA
Forestry Administrative Agency	FAA
Environmental Protection & Monitoring Agency	EPA
Municipal Planning Agency	MPA
Housing Construction Agency	HCA
Development & Reform Agency	DRA
Social Stability Maintenance Agency	SMA
Public Complaint Division	PCD
Human Resources & Social Security Agency	HRA
Department of Land & Resources	DLR
Administration of Production Safety	APS
Department of Ethnic Minorities & Religions	DER
Education Administrative Agency	EAA
Police Department	PDT
Judicial Bureau	JBU
Legislative Affairs Office	LAO
Water Resources Agency	WRA
Department of Economy & Trade	DET
Statistical Bureau	SBU
Supervision Branch of Communist Party Committee	SBC
Comprehensive Administrative Agency	CAA
General Office of Government/ Communist Party Committee	COC
Representative of Affected Community	RAC