

# Temporal variation of social network in attitude formation observed in communities affected by the resettlement project in Vietnam

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Project for the development of infrastructure is often accompanied by the relocation of the residents. Positive attitude of the affected people is essential for the success of such project. It is known that social network is important in the attitude formation but the mechanism how the attitude is affected remains to be explored. Field survey was conducted in the affected site in Vietnam, about the social networks and communication networks among the affected households and their attitude toward the project. It was observed that network to communicate affectivity information exhibits correlation with their attitude, while the network about knowledge exchange does not show clear correlation.

*Key Words* : social network, attitude, resettlement project

## 1. INTRODUCTION

Infrastructure development project requires the land for the implementation and it is often accompanied by the relocation of the residents and the land acquisition. People's attitude toward the project is important for the successful completion of the resettlement project. In order to make people have positive attitude toward the project, previous researches (Cernea M. 1997 2004 2008, Scudder 2006) and resettlement policies (WB 1990, ADB 1998, Cernea M. 1988) mainly consider substantial condition. Scudder's four-stages framework (Scudder 2006) theorize specific behavioral reaction and stress of majority of resettlers during a successful resettlement process, which contains four following stages: planning and recruitment, adjustment and coping, community formation and economic development, handing over and incorporation. In the framework, resettlers are considered as the key resource for achieving a positive consequence. Majority of those resettlers are hypothesized that they have responds in the same way to resettlement regardless differences in location, socio-economic, culture, and authority organization. Cernea's impoverishment risks and

reconstruction model (Cernea 1997 2004 2008) identify and specify eight principal and most widespread risks and the methods to avoid the risks. They are landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity, loss of access to common property resources, and community disarticulation. Involuntary resettlement policies of organizations as World Bank (WB 1990, Cernea M. 1988) and Asian Development Bank (ADB 1998) pay significant attention on providing sufficient substantial conditions for affected-people and provision of official information regarding the project. However, it may not be enough because the process how the community develops their attitude toward the project is complex and sensitive to many factors.

It has been known that social network is significant for attitude formation (Duncan J. Watt 2007, Noah E. Friedkin 1993 1999, Wendy Wood 2010). Attitude and social network are not independent but related (Burk W. J. 2007, Erickson B. H. 1988, Snijders T. A. 2010). Relationship of attitude or behavior and a single network of social relationship, such as a friendship network or a kinship network, has been mainly discussed (e.g. Mercken L. 2010, Van De Bunt 1999). However,

people's life is not of single aspect. Theoretical discussion and tool development about the multiple network structure has been also started (Snijders T. A. 2003). Therefore, how social network affects attitude still requires further discussions.

When a community is affected by the project, people's communication regarding the project may also have role in the effect of social network on attitude formation. Hence, it is necessary to clarify how social network influences attitude formation of a community, which is affected by the resettlement project, by considering the role of people's communication about the project.

## 2. STUDY CASE



Fig.1 Noibai-Laocai highway project in Vietnam

Considering the background and objective in the previous section, study cases were selected are two affected villages, namely V and B, in a resettlement case accompanying the Noibai-Laocai highway project partly funded by the ADB's loan in Vietnam (ADB 2007, VEC 2009 2011).

The Noibai-Laocai highway project is expected to provide a significant contribution to the future socio-economic development of Vietnam and the northwest region in particular, however it had two years delay by 2012 partly due to people's complaining and demonstrations. The ministry of transport is the executing agency, while the Vietnamese expressway corporation (VEC) is the implementing agency. The highway project is approximately 244 km long, and its estimated total cost is 1.5 billion dollars. The highway will start near the Noibai International Airport in Hanoi city, and will traverse the provinces of Vinhphuc, Phutho, Yenbai, and Laocai towards the Chinese border in the north. A total of 18 districts and 72 communes will be traversed by the highway, which was envisaged to be operational by 2012. The proposed project constitutes part of the North to South Corridor linking Kunming in China with Hanoi and Haiphong port in Vietnam. It is an integral part of the Greater Mekong sub-region highway development plan and it will provide a significant contribu-

tion to regional road networks through enhancing the transport corridor between China in the north and the Mekong Delta in the south. At the national level, it will connect the northwest region of the country, now very poor and isolated, with the economic centers that have developed around Hanoi and its port of Haiphong. At the regional level, it will link rapidly expanding economy of Yunnan province of China with Hanoi and Haiphong, allowing the rapid expansion of cross border trade and commerce. Poverty in the project area is largely a consequence of poor local road infrastructure, particularly on the right bank of the Red River. People living below the poverty line are suffering poor accessibility to economic opportunities, and education and health services. Once the project highway has been completed, due to the substantial reduction in travel time and much improved transport conditions, industries clustered around Hanoi and Haiphong will be able to expand to the very poor northwest of country, bringing employment, better access to social services and other benefits. The decrease in travel cost will encourage economic activities in the project provinces, provide employment opportunities for the local population, and improve access to social services. According to owner's official reports (VEC 2009 2011), the total number of affected households is 25,024 including 2,403 relocated households. The acquired land for the expressway project is 2,087.9 ha in total including productive land (such as rice paddies, fishpond, vegetable gardens, orchards, and woodland) and non-productive land (such as residential land, non-agricultural land, waterways, footpaths, and graveyards). The project affected to resident's house, secondary structures (such as kitchens, toilets, porches and fences), and also public facilities (such as electric posts, lines and telephone wires and communal-owned irrigation system). The project was originally scheduled to be completed by 2012, but it has been delayed around 2 years because of the delay of construction work and resettlement issues such as affected people's complaining and demonstrations.

The selected survey sites are two rural mountainous affected villages, namely V and B, located in Laocai province. In both villages, most of residents belong to Tay ethnic. They have close relationships and intact community as typical rural mountainous villages in Vietnam. Most of people know each other in their community and they often meet and talk with close people such as relatives, neighbors, and close friends. They mainly communicate via face-to-face meeting inside a dense social network while phone and internet are rarely utilized. Village V is located in the suburban area and at the distance of 15km from the center of the Laocai city, while

village B is about 50km far away from the center. According to a survey in 2009, about 80% of affected households in village V are farmers, the average income is low and about 51,000 yen/year, and about 87% of them do not have a high school degree. While in village B, all affected households are farmers, the average income is even lower and about 18,000 yen/year, and about 96% of them do not have a high school degree. Caused by the project, more than a half of households are affected by the resettlement project (41 of 76 households in village V, and 26 of 50 households in the village B). The affected households lose property such as house, agricultural land, and forestland. Ten relocated households moved to resettlement sites in the village V, while six ones had individual relocation within the village area in the village B. The highway project had been implementing in the tow villages since 2007 as the detailed schedule in the Table 1, it has been facing with many obstacles regarding to resettlement issues such as people's complaining and claims.

### 3. INTERVIEW SURVEY

**Table 1** Time schedule of the resettlement project and related interview surveys in the two villages

Event	Village V	Village B	Survey times
First announcement	01/2007	12/2007	
Announcement meeting	03/2008	05/2008	
Detail measurement survey	04/2008	07/2008	
Compensation fee payment	11/2008-	12/2008	←1st Survey (12/2008)
Land acquisition, relocation	12/2009-	04/2009-	←2st Survey (06/2009)
Construction work	12/2009-	01/2010-	←3 <sup>rd</sup> and 4 <sup>th</sup> Surveys (01/2011, 09/2011)
Income restoration	07/2012-	07/2012-	←5 <sup>th</sup> Survey (11/2012)

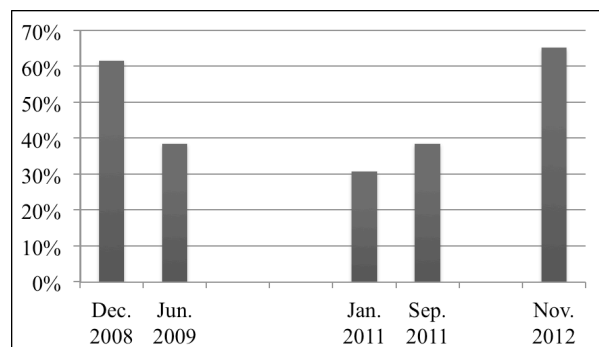
In the above study sites, semi-structured interview survey has been conducted to all of the affected households and concerned people such as project authorities and village leaders at different project stages to investigate about affected households' social relationships, communication and attitude toward the project. As for their social relationship, the survey investigated a network of close relationships with households they have dear relationship and see/talk often with. The network has been considered as the main factor of social network in a Vietnamese rural community (Dalton R. J. 2002 2005, Lan Hoang Anh 2006, Truong Thi Kim Chuyen 2002), and it is named Relationship Network (RN) in this research. As for their communication regarding the project, the survey investigated both networks of communication of formal information and informal information. The network of communication of formal information is a network on which

affected households exchange knowledge about the project such as knowledge about compensation fee and resettlement policies, it is named Knowledge Sharing Network (KSN). The network of communication of informal information is network to share emotion/feeling about the project, such as emotion related to compensation fee and future life, it is named Affectivity Sharing Network (ASN). As for affected household's attitude toward the project, the attitude level, its reasons and its possible correlation with social relationship and communication were also conducted.

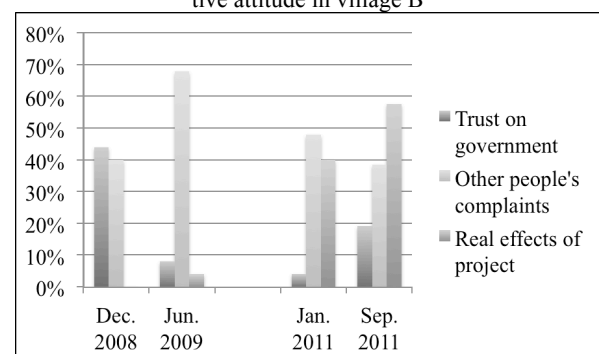
The interview survey was conducted five times at different project stages as the detailed interview schedule in the Table 1. The first survey was in December 2008 when the compensation fee payment has just started in the village V and immediately at starting of the payment time in the village B. The second survey was in June 2009, when the land acquisition was underway in the village B but has not been started in the village V. The third survey was in January 2011. By that time most of land acquisition has been conducted. The fourth survey was in September 2011. Finally, the fifth survey was in November 2012, when the Income Restoration Program (IRP) has just started. In each survey time, it took 2 to 4 weeks to conduct the interview with all affected households and the concerned people.

### 4. ATTITUDE AND NETWORKS BEFORE LAND ACQUISITION (LA)

#### (1) Attitude and its reasons before LA



**Fig.2** Variation of percentage of households with nonnegative attitude in village B



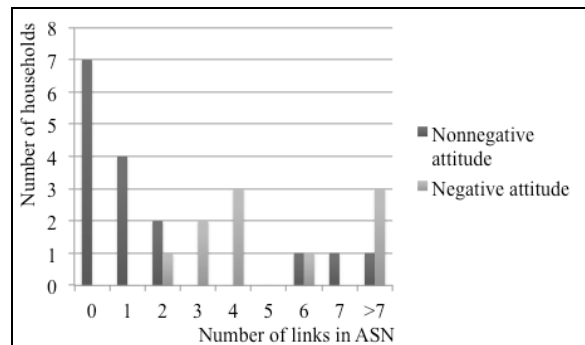
**Fig.3** Variation of main factors of the attitude in village B

At the early stage when the authority announced the project's information, most of people had positive attitude toward the project due to their trust on the government, however, when the detail measurement survey and compensation fee payment were conducted, affected households changed to have negative attitude and complained about compensation fee due to informal information. According to interview to the leader of village V, he said "...in beginning, nearly 100% of affected-households had positive attitude toward the project because they thought it is a governmental project, they trusted the government, and they thought the government would help them having good life after the land acquisition...". As a mountainous area with poor condition of transportation such as dirt roads, local residents had high willing for an infrastructure development project. They thought that the highway project is necessary for the national development and also for their own transportation accessibility to other cities such as the Hanoi capital, besides that, they did not recognized enough the possible difficulties in the future life such as jobless, landless, homeless and environmental effects. Then, when the detail measurement survey and compensation fee payment started, some affected households who would be suffered relatively severe property loss, started to have negative attitude and complained about compensation fee. Sequentially, more affected-households started to have negative attitude and some of them even submitted complaint letters to their local governments. People did not have sufficient knowledge about the origin of the problems such as resettlement law, income restoration in the near future, and unit cost of compensation fee. They did not determine the attitude based only on accurate information, but they were affected by informal information such as other people's opinion. For instance, in village B, the survey data shows that the trust on the government was important for attitude formation for over 40% of the affected households at starting of payment time in December 2008, but it reduced quickly to nearly 8% at the second survey in June 2009, while other people's complaint about compensation fee was important for attitude formation for around 40% of the households at the first survey. Then it increased to nearly 70% at the second survey (Figure 3). These above data and analyses in this subsection show that people had positive attitude toward the project in beginning then negative attitude at the later time (Figure 2) due to the trust on the government and then the influence of informal information regarding complaint about compensation fee, respectively.

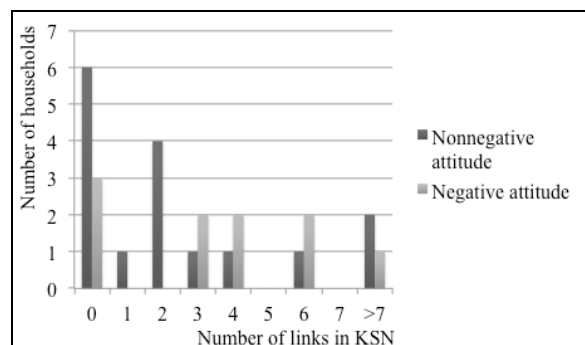
## (2) Relationship of attitude with the networks

### under a main concern of compensation

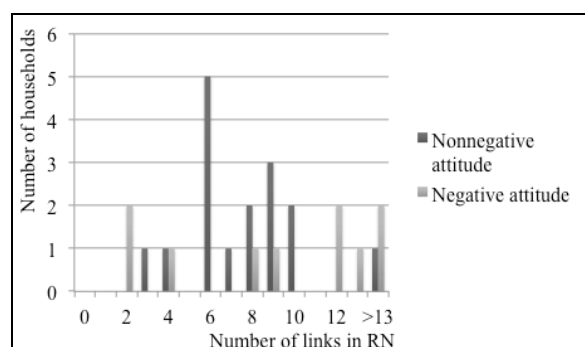
The above subsection showed that attitude formation was affected by the informal information, this subsection will discuss the relationship of the attitude with the networks of communication (ASN and KSN) and the network of close relationship (RN) in this project stage. Analysis results will show, in both network data and interview data, the attitude level had a clear correlation with network of ASN about compensation fee, but not with the KSN and RN.



(a) Affectivity Sharing Network (ASN) of complaints about compensation fee



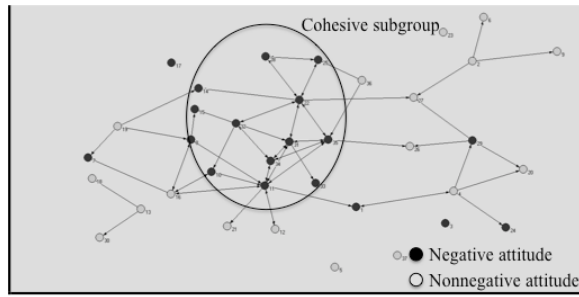
(b) Knowledge Sharing Network (ASN) about compensation fee



(c) Relationship Network

Fig.4 Relationship between number of households with negative/nonnegative attitude and number of links in the three networks in village B in Dec. 2008

As for network analysis result, there is a clear



**Fig.5** Cohesive subgroup of households with negative attitude in ASN of complaints about compensation in village V in Dec. 2008

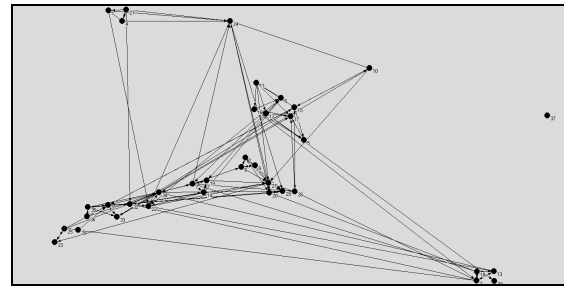
correlation between attitude level and network properties of the ASN, including both locational and structural properties, but no such correlation with other networks (KSN and RN). For instance about locational properties, Figure 4(a) plots the number of households with negative / nonnegative attitude who have certain number of links in ASN of complaints about compensation fee. Figure 4(a) shows that a household with a large number of links in the ASN tends to have negative attitude, while a household with a small number of links tends to have nonnegative attitude. Figures 4(b) and 4(c) plots the results with the KSN about compensation fee and RN with unclear difference between the negative and nonnegative attitude. The correlation between the attitude and the ASN was also observed in term of the network structural properties. For instance, Figure 5 plots the ASN of complaints about compensation fee in the village V in December 2008. The households with negative attitude form a high density subgroup, which is called a cohesive subgroup (Stanley Wasserman 2007), in the ASN of complaints of compensation fee but not in other networks (KSN and RN).

As for the interview data, as the discussion in the above subsection, it was also shown that people's attitude was affected by informal communication of complaints about compensation fee.

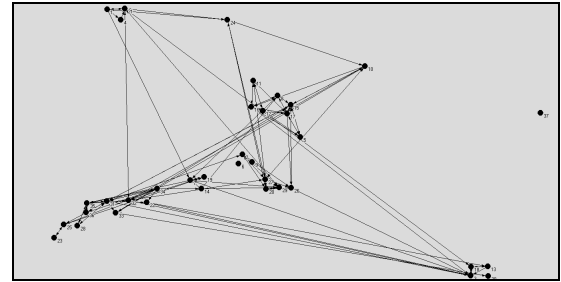
These results showed a clear correlation between attitude and the ASN in this project stage. It is shown that when a household has communication of complaint about compensation with more other households and joins in a cohesive subgroup of households with negative attitude, the household is more likely to have negative attitude. Such correlation was not observed with KSN and RN. It indicates that among the networks associated with attitude, at this stage, ASN was the only network, in which attitude has a clear correlation with the network properties.

### (3) Relationships among the networks under a

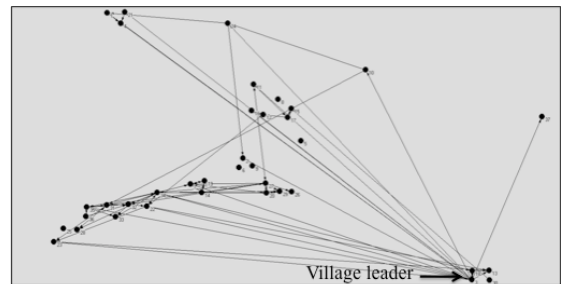
### main concern of compensation



(a) Relationship Network (RN)



(b) Affectivity Sharing Network (ASN)



(c) Knowledge Sharing Network

**Fig.6** Relationship between Relationship Network and communication networks about compensation fee among affected households in village V in June 2009

As social network is not single but multiple (Snijders 2003), this subsection will discuss about static relationships among the three networks (ASN, KSN and RN) in this project stage.

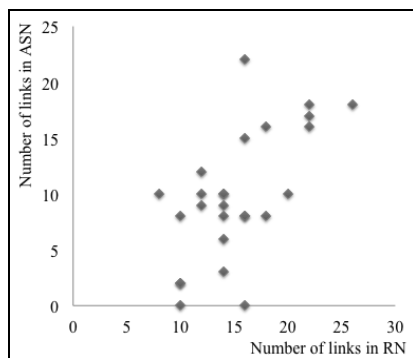
**Table 2** Comparison about sharing links between the three networks in village V in June 2009

	RN2009	KSN2009	ASN2009
RN2009	100%	23%	40%
KSN2009	54%	100%	38%
ASN2009	67%	26%	100%

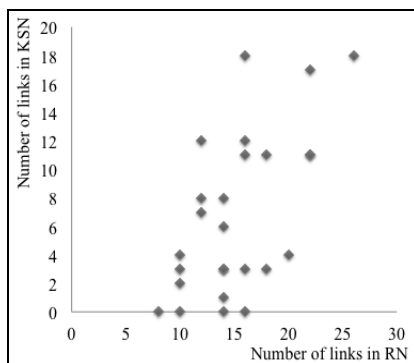
- Note: a value shows the percentage of links of a vertical network exist in the horizontal network

Network analysis results show that there was a high similarity between RN and ASN, but no such similarity with KSN. The similarity is discussed by concerning the network shapes, percentage of

sharing links, and sharing centralities. Figure 6 plots network of close relationship (RN) and networks of communication (ASN and KSN) about compensation fee in village V in June 2009. It shows a comparison about network shape between the three networks. While the KSN is a concentrated shape with many of links from the village leader, the ASN and the RN are distributed shapes among affected households. As for percentage of sharing links, Table 2 shows a comparison about sharing links between three networks in the village V in June 2009. It shows that ASN and RN shared majority of links but not with KSN, for instance around 67% of links of ASN existed in RN. As for the centralities, Figure 7 shows one example of the village B in June 2009 that ASN and RN shared most of centralities, which have high number of links, but centralities of KSN were different.



(a) Numbers of links in ASN and RN for each household



(b) Numbers of links in KSN and RN for each household

**Fig.7** Relationship between number of links in RN and number of links in ASN and KSN about compensation fee for each household in village B in June 2009

Beside the similarity between the three networks, it was also observed individual characters of each network. As for ASN, there were high densities of a subgroup of households who have same negative attitude and a subgroup of households who have similar property loss. For instance, in ASN about compensation fee in the village B in December 2008, density of subgroup of households who had

negative attitude is 0.189, while density of the whole ASN is 0.063. As for KSN, most of links were from local leaders, for instance the KSN about compensation fee in the village V in June 2009 in Figure 6(c).

In addition, according to the interview data with affected households and local leaders, they mentioned that affected households often share their emotion about compensation with their close people and households who have similar attitude and similar property loss. While, regarding the knowledge sharing about compensation fee, they often ask the information from local officials and some affected households who have better understanding about the project.

Combining both the network analysis results and the interview data, it indicates that, in this project stage with the main concern of compensation fee, ASN was based on RN and homophily property (MrPherson 2001) regarding attitude level and asset loss. While the KSN was not limited on RN, affected households tended to ask information from people who have good knowledge about project. The dynamic changes of the networks in this stage will be further discussed in the Section 7.

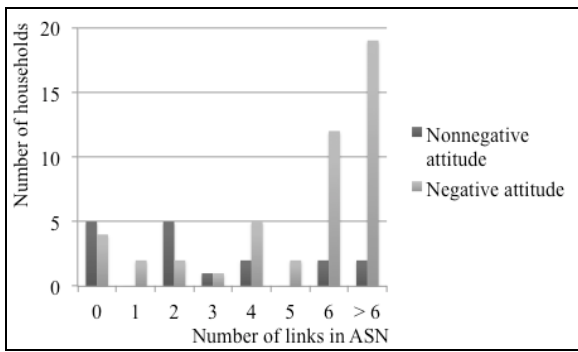
## 5. ATTITUDE AND NETWORKS AFTER LAND ACQUISITION (LA)

### (1) Attitude and its reasons after LA

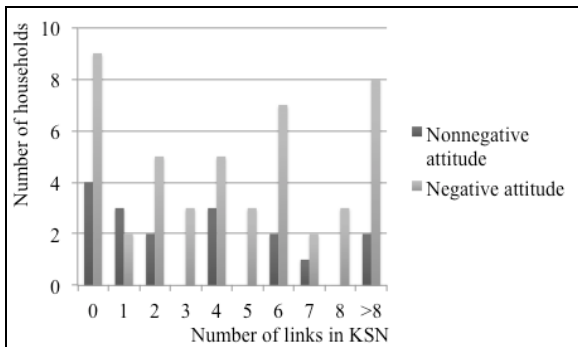
After land acquisition and relocation, affected households lost their properties and faced to real effects of resettlement such as lack of income, poor infrastructure condition of the resettlement site, and bad effects of construction work to their life. As a result, experience of resettlement effects contributed to affected household's negative attitude (e.g. Figures 1 and 2). The Figure 2 shows that ratio of the households who mentioned to other people's opinion as the main factor for their attitude was 38% in September 2011, which is reduced from 70% in June 2009. On the other hand, 58% of affected households in the village B told that they have negative attitude due to the difficulties related to the loss of rice field, house and other infrastructure such as irrigation system, indicating that the experience of land loss and construction became a main factor for the formation of people attitude in this project stage.

### (2) Relationship of attitude with the networks under real effects of the project

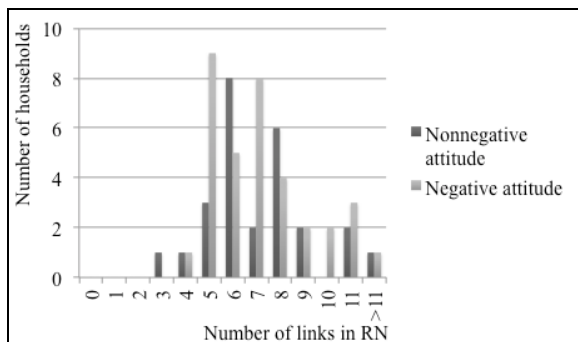
Analysis result in this stage, as similar as the above project stage, also shows that there was a correlation between attitude and the ASN, but no



(a) Affectivity Sharing Network (ASN) of complaints about compensation fee



(b) Knowledge Sharing Network (ASN) about compensation fee



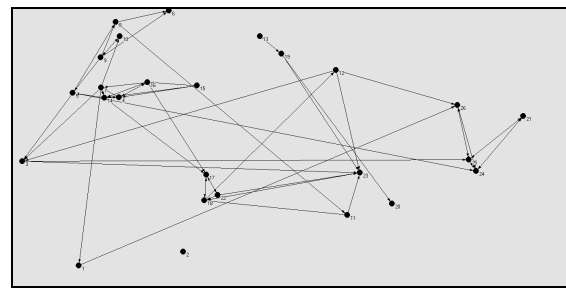
(c) Relationship Network

**Fig.8** Relationship between number of households with negative/nonnegative attitude and number of links in the three networks in two villages V and B in Jan. 2011

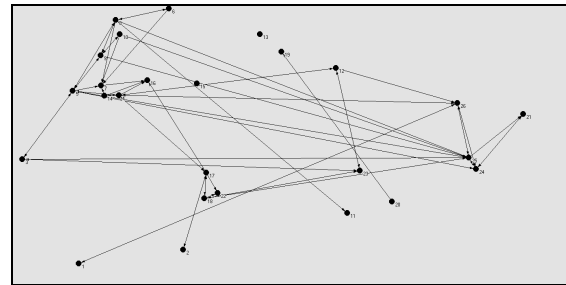
such correlation between attitude and the other networks (KSN and RN); however, the correlation was not as clear as in the previous stage (e.g. Figure 8). The decrease of the correlation was caused by direct influence of the real effects of the project to attitude formation. As the discussion in the above subsection, main reasons for people’s attitude formation in this stage were not only informal communication but also the project’s real effects.

### (3) Relationships among the networks under real effects of the project

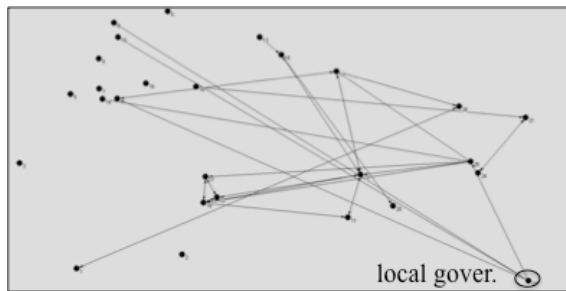
The relationships between the three networks, were discussed in the project stage before LA, were



(a) Relationship Network (RN)



(b) Affectivity Sharing Network (ASN)



(c) Knowledge Sharing Network

**Fig.9** Relationship between relationship network and communication networks about compensation fee among affected households in village B in Jan 2011

also observed in this project stage (e.g. Figure 9). However, the similarity of RN on ASN in this project stage was less than in the previous stage. Drastic changes in the networks after land acquisition and relocation will be further discussed in a Section 7.

## 6. ATTITUDE AND NETWORKS IN INCOME RESTORATION PROGRAM (IRP)

### (1) Attitude and its reasons in IRP

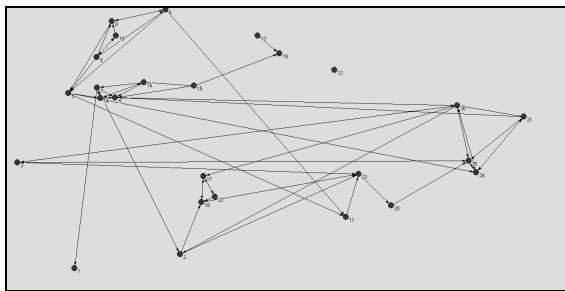
When the income restoration program (IRP) started, affected households had about 3 years to adapt the life after land acquisition, many of them recovered their nonnegative attitude (e.g. Figure 1). Most of affected households found alternative jobs, most of which were construction works, however these jobs were not stable for their livelihood. When the income restoration program was announced to selected affected households and then was diffused

among some households, those people had positive attitude about project regarding the IRP, but because of the program's delay, some of them again got disappointed with the project.

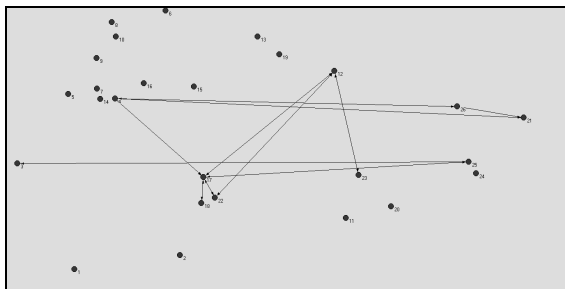
**(2) Attitude and the networks under a new concern of IRP**

The interview survey was conducted in November 2012 when the IRP just started in village B, only limitted number of affected households knew and talked about the program (Figure 10). As a result, the networks of communication (ASN and KSN) about IRP had not showed a clear correlation with attitude level of the whole community yet, but it affected the attitude of the households who joined the communication. It could be conjectured that the ASN about IRP will has a correlation with the attitude when the IRP is implemented.

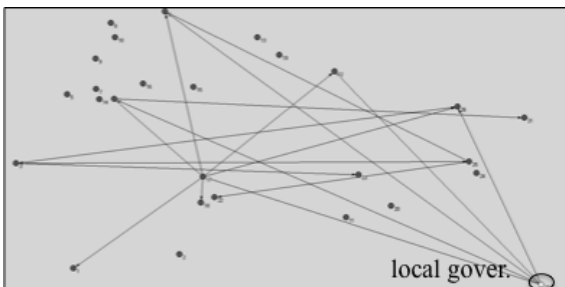
The survey data also shows that ASN about IRP



(a) Relationship Network (RN)



(b) Affectivity Sharing Network (ASN)



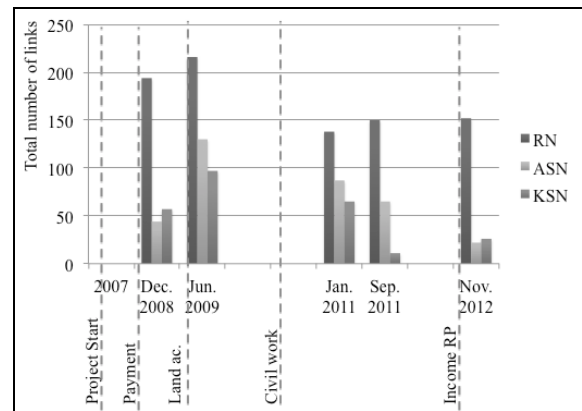
(c) Knowledge Sharing Network

**Fig.10** Relationship between relationship network and communication networks about income restoration program among affected households in village B in Nov. 2012

occurred and developed based on RN and the homophily property. For instance, majority of links of ASN about IRP existed in RN and between households who had same concern about IRP and severe property loss such as house. While, as for KSN about IRP, affected households asked the information from local officials and a household who joined with the official meeting regarding IRP.

These observations in this project stage of income restoration program is also consistent with the relationships among attitude and the networks discussed in the previous sections. Dynamic change of the networks will be discussed in following section.

**7. TEMPORAL CHANGE OF THE NETWORKS THROUGH WHOLE PROJECT**



**Fig.11** Change of total number of links in the networks through whole project in the village B

Sections 4, 5, and 6 statically discussed about the relationships among attitude, ASN, KSN, and RN in each project stage, this section will discuss the temporal changes of the networks through the whole project process.

Before land acquisition, affected households's main concern was about compensation fee, as a result, the networks of communication regarding compensation fee highly increased. It is shown by not only the increase of number of links in the related ASN and KSN (e.g. data in 2008 and 2009 of the Figure 11), but also increase of number of households who join with the communication. In beginning, the communication was mainly among households who have severe property loss and the high concern, and then sequentially most of affected households and also other households joined with the communication. The interview data with affected households and village leaders shows that the increases of ASN and KSN about compensation fee were caused by people's high concern and need

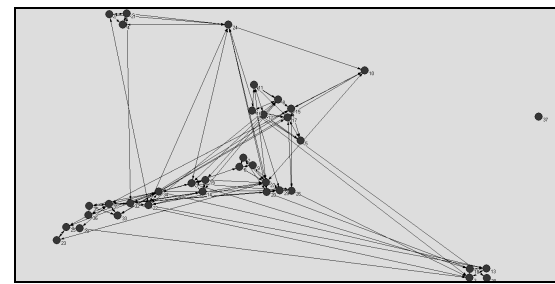


about knowledge and sharing emotion regarding the project. As the previous discussion in section 4, the ASN about compensation fee had a clear correlation with people's attitude. From dynamic viewpoint, the correlation can be also seen from relationship between the increase of negative attitude (e.g. Figure 1) and the increase of ASN of complaints about compensation fee (e.g. Figure 11) in this stage. As for a comparison of the temporal change between ASN and KSN, it was shown that KSN also highly increased in beginning but then quickly decreased before ASN. For instance, number of links of the KSN in the village V decreased from 114 links in December 2008 when affected households had highest concern and need about formal information regarding compensation fee payment to 102 links in June 2009 when the need reduced, while number of links of the ASN highly increased from 81 links in December 2008 to 171 links in June 2009. As for the temporal change of RN, there was an increase of number of links in the RN (e.g. Figure 11). Although, in a comparison with the changes of ASN and KSN, RN was relatively stable (e.g. it had higher percentage of unchanged links), however it also changed and its change was related to ASN. In addition with the network data, according to the interview data, affected households mentioned that many relationships among them became closer due to the increase of frequency of emotion sharing about the project such as compensation fee. The village leaders also mentioned that compensation fee was the main topic of resident's daily communication, which made them closer. So, in the project stage before land acquisition, due to the high concern about compensation fee, there were the high increases of the related networks of communication (ASN and KSN) but with the different ways mentioned in the previous discussion, RN was also changed and its change was related to the increase of ASN.

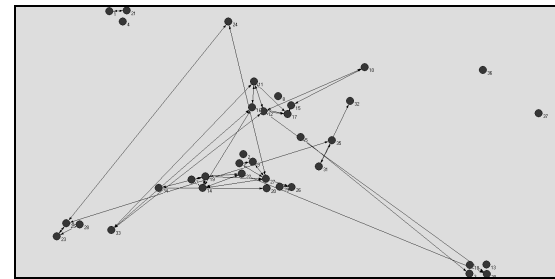
After land acquisition and relocation started, there were drastic changes in the networks.

As for the change in the networks of communication (ASN and KSN), it was observed that there was high decrease of the communication among affected households but little explaining to outsiders. The main reasons were the decrease of people's concern about the project and the change of RN, which will be discussed in the below paragraph. Affected households mentioned that they needed to adapt with new life such as finding alternative jobs, therefore they had less concern about the project and less talk about the project than before.

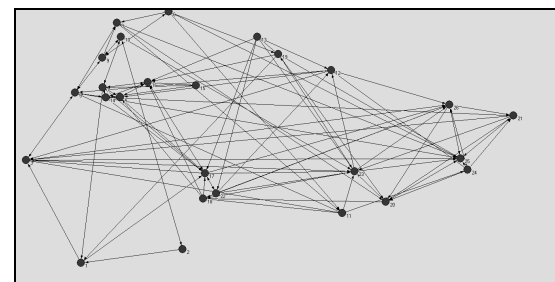
As for the change in RN, it was mainly affected by external factors, which include not only geographical change but also availability of job.



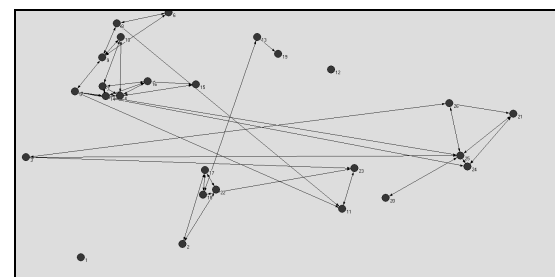
(a) Close relationships among affected-households in village V in June 2009. (Total number of links=200)



(b) Close relationships among affected-households in village V in September 2011. (Total number of links=78)



(c) Close relationships among affected-households in village B in June 2009. (Total number of links=180)



(d) Close relationships among affected-households in village B in September 2011. (Total number of links=74)

**Fig.12** Comparison of Relationship Networks among affected households in 2009 and 2011

Figure 12 plots the relationship networks among the affected households in the villages V and B for the survey results of June 2009 and September 2011. The number of links among the affected households reduced considerably in both villages. As a reason for the shrinkage of relationship network, 8 out of 13 affected households (62%) who said some of their previous links were broken, mentioned to the relocation, and 7 out of 13 (54%) affected house-

holds mentioned to job availability when they lost their rice fields. For instance, one of affected household in village V explained: *“I lost almost all rice fields. I lost job as farmer. Now I do not often see the people who used to work together with me, and we no longer have close relationship”*. It was also found that people obtained links with unaffected households and households belonging to other villages. (These links are not plotted in Figure 12). The number of links to out of those other than affected households increased from 84 in June 2009 to 132 in September 2011 in the village V, and from 36 to 76 in the village B. Affected households came to have more links with people out of the village, because they now have new jobs out of the village. The leader of village V said that people who found new jobs out of the village spent most of daytime for their work out of the village and had less conversation with the residents of the villages.

The different availabilities of job triggered the different changes in RN in the village V and B. In the village V, which locates 15 km from the center of Laocai city, residents had more chances to find a place to work near the village. In the village B, which is 50 km from the center of Laocai city, there were not so many jobs out of the village and people did not lose their land so critically as in the village V. According to the survey in September 2011, 55% (20 of 36) of AHs in the village V obtained non-agricultural jobs and some of them even increased their income and have more acquaintances out of the village, while only 27% (7 of 26) of the affected households found non-agricultural jobs in the village B. It can be used to explain the different change of RN in the two villages. The RN in village V has higher shrinkage among affected households but more expanding to outsiders. It could be conjectured that the village V is more urbanized than the village B.

Then, after income restoration program started with the initial announcement to limited selected affected households, because of the concern of some affected households, the related networks of communication (ASN and KSN) about income restoration started to increase (e.g. Figure 11). As for a change of RN, the number of links of RN increased slightly (e.g. Figure 11). The affected households, who joined with the communication about IRP, said that the program created a new same concern among them and made them to talk and meet more often and became closer. It could be conjectured that the networks of communication (ASN and KSN) will continually increase and contribute the recovery of network of close relationship (RN) when the IRP is implemented.

This section showed that the networks of

communication about the project (ASN and KSN) were tentative and transitional, it rose and fell as people's concern about the project event changed but ASN lasted longer. On the other hand, network of close relationship (RN) was relatively stable, but it was not fixed and affected by ASN and external factors including geographical change and the availability of job.

## 8. CONCLUSION

For the successful completion of the infrastructure development project, which requires relocation and land acquisition, people's attitude forward the project is an important issue. Providing correct information and sufficient substantial condition is essential, but people's attitude is also related to their social network.

Interview survey was conducted to the all affected households and concern people such as local leaders in two villages over 4 years in a resettlement case accompanying a highway construction in Vietnam. Through the interview, we investigated their network of close relationship – Relationship Network (RN), network of emotional communication about the project – Affectivity Sharing network (ASN), network of cognitive communication about the project – Knowledge Sharing Network (KSN), and their attitude toward the project. The interview survey was conducted five times at different project stages: before and after land acquisition, and in income restoration program.

It is found that social network affects attitude formation by a multiple network structure including the three networks, not by a single network structure of social relationship. Among the three networks, only the network of emotional communication about the project (ASN) has a clear correlation with attitude formation. The correlation reaches the clearest level at the beginning stage of the project before the real effects of the project such as land acquisition. ASN is based on the network of close relationship (RN) and also the homophily property regarding attitude level and asset loss. While the network of cognitive communication (KSN) is not limited by RN, it is based on a rule that affected households, as their need about the related formal information, tend to ask the information from people who have good knowledge about the project such as local leaders. As for the temporal change of the three networks, the networks of communication about the project (ASN and KSN) are tentative and transitional, they rise and fall as people's concern about the related the project event changes but ASN lasts longer and has more important and long-term effects on the attitude formation and the change of RN, while

network of close relationship (RN) is relatively stable but also affected by the ASN and external effects, which were not only geographical change but also the availability of job in this study case.

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