

**THE REALITIES AND BACKGROUND OF THE MOVING OF RESIDENTS
BY THE COLLECTIVE RELOCATION PROJECT
AFTER THE NIIGATA KEN CHUETSU EARTHQUAKE
Cases of Nishidani District and Kotaka District, Nagaoka City**

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Abstract

This article is a fundamental study to consider the manner in which villages can reconstruct after a disaster in semi-mountainous regions. We focused on the cases in which the Collective Relocation Promotion Project for Disaster Prevention (collective relocation) was applied as the main reconstruction project after the Niigata Ken Chuetsu Earthquake (October 23, 2004), and analyzed the effect of the project on the villages.

There are multiple types of collective relocation. The objects of this study include a case of spotty partial collective relocation and a case of relocation of the whole village. We conducted a questionnaire survey for residents of Nishidani District and Kotaka District in Nagaoka City who experienced the collective relocation. The results of analysis were as follows:

1) One of the problems of relocation of the whole village is that there are residents who chose to move based on a negative motive. On the other hand, public housing was supplied in the new housing complex by the project and this supported the relocation of low income residents. Also, many of the relocated residents do not cut the relationship with their former living places. They still often go back and forth between the present and former residences to utilize their farmland.

2) One of the problems of spotty partial collective relocation is that some residents remain behind based on a negative motive. There was a trend of single or couple households remaining. Especially in peripheral areas of the villages, more unfavorable conditions occurred, such as the devastation of abandoned farmland or decreased frequency of contact with neighbors. Remaining residents generally showed a lower intention of permanent settlement.

3) These two village restoration systems have a relationship supplementing each other. If relocation of a whole village is not necessary, spotty partial collective relocation is one of the main measures taken. But it has the necessary condition that there are no residents remaining behind based on a negative motive. Supplying public housing in a new residential complex is an effective means of assistance used by the project.

1. Introduction

This article is a fundamental study to consider the manner in which villages reconstruct after a disaster

in the semi-mountainous regions. We focused on the case in which the Collective Relocation Promotion Project for Disaster Prevention (collective relocation) was applied as the main reconstruction project after the Niigata Ken Chuetsu Earthquake (October 23, 2004), and analyzed the effect of the project on the villages. This is a case study of Nishidami District and Kotaka District, Nagaoka city.

The collective relocation was enforced in 1972 and its purpose is the following: In areas where a natural disaster, such as a heavy rain, flood, landslide, or avalanche occurred or an area with the fear that these disasters may occur, an area judged not to be appropriate as a place of residence is set as a relocation promotion area. In the area, the collective relocation of houses is promoted based on the intention of the residents to protect the lives and property of the residents from disaster.

The issues concerning collective relocation are as follows: 1) In the Chuetsu Earthquake in particular, there are three patterns of relocation; the case in which the whole village moved outside the village, the case in which part of the village moved outside the village, and the case in which part of the village moved within the same village. 2) How has the relocation influenced the community in the original village? And how is the influence different according to relocation types? 3) Which type brings a desirable result, considering the differences of geographical convenience and the situation of damage by the earthquake?

Ishikawa *et al.* (2008) classified the all-inclusive situation of relocations to grasp restoration projects including the collective relocation in the Chuetsu Earthquake. In addition, there are precedent studies based on investigations at the time in the middle stages or at the completion of the relocation projects. Aoto *et al.* (2008) pointed out that spotty partial collective relocation brought the negative influence in their former living places such as the weakening of neighborhood relations and collapse of the community of the village. Have such problems continued obstructing the ability of residents to recover their lives? Or did residents achieve this recovery by time passing? When some periods have passed since the end of the project, it is necessary to investigate the actual conditions again.

Therefore this study clarifies the following in two cases of a relocation of the whole village and a spotty partial collective relocation: a change of the village space, actual conditions of relocation, the basic attribute of each household, reasons of relocation, a life changes before and after the earthquake, intention of settlement at their present residences, and the relationship between their former living places and their present living places.

2. Research Method and Areas

2-1 Outline of Districts where Collective Relocation was Applied and Research Areas

The collective relocation plan comprised the main measures carried out for the restoration after the Chuetsu earthquake. The plan was implemented in 9 districts shown in Tab.2-1. The cases of relocation of the whole village are 2 districts of Jyunidaira in Ojiya City and Kotaka in Nagaoka City. And the other 7 districts applied a spotty partial collective relocation.

In Urase and Nishidani of the 7 districts, new housing complexes for relocated residents were built in each village. In 5 districts of Ojiya City, housing complexes were built outside the villages. Especially in the latter case, relocated residents and remaining residents were distantly separated from each other. Relocated residents moved to an urban area where it is safer and more convenient, while the remaining residents stayed in the former risky village. It is speculated that various discords were caused between

them. It is thought that these cases should have been a relocation of the whole village as in the cases of Jyunidaira and Kotaka since those who remained view it as a negative option.

Therefore, this article discusses two relocation types; part of the village moved within the same village area (Nishidani) and the case in which the whole village moved outside the former village area (Kotaka) [Tab.2-2]. These two types can be thought of as ideal ways of village restoration in the future. Of course, it is expected that there are also various problems in these cases. The attempt to clarify them would bring valuable information to specify the conditions of application of collective relocation in semi-mountainous disaster areas.

Tab.2-1 Outline of Districts where Collective Relocation was Applied

City	District	Relocation Type	household	Relocation Pattern		Name of Housing Complex
				Individual	Collective	
Nagaoka	Urase	Partial	14	4	10	In the Village
	Nishidani	Partial	16	3	13	
	Kotaka	Whole	24	6	18	
Ojiya	Jyunidaira	Whole	11	1	10	Outside the Village
	Utogi	Partial	45	14	31	
	Nigoro	Partial				
	Tsumurisawa	Partial				
	Asahi	Partial				
	Shiodani	Partial	24	9	15	

Tab.2-2 Relocation Type

	In the Village	Outside the Village
Relocation of the Whole Village		<i>Kotaka</i> Jyunidaira
Spotty Partial Collective Relocation	Urase <i>Nishidani</i>	Utogi Nigoro Asahi Shiodani Tsumurisawa

2-2 Outline of Research Areas

Fig.2-1 shows the locations of Nishidani and Kotaka Districts. Nishidani District is about 15km to the southwest of the center of Nagaoka City. 9 houses were completely destroyed and 20 houses were partially destroyed by the earthquake. Especially the steep northern area in the village was damaged. Not only houses, but also the land, roads and lifelines like gas and water supply suffered heavy damage.

Kotaka District is about 5km to the south of the center of Kawaguchi Machi. 24 houses were completely destroyed. A landslide had blocked the road and the emergency extended over a long period of time.

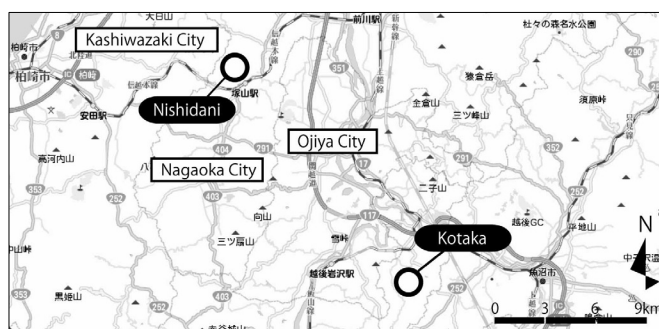


Fig.2-1 Location of Research Objects

Fig.2-2 shows the relations between districts that are research objects and relocation promotion areas. The damage of Nishidani District was partial and the whole area was not judged to be an unsuitable place of residence. That is, the basis of application of the collective relocation was not that there was a substantial danger or risk in the entire area, but rather it was considered for application because it could support the rebuilding of residents' housing. The flexible setting up of the relocation promotion areas depending on the circumstances of each household was attempted based on the residents' intentions to relocate or not. As a result, the 5 relocation promotion areas were set in different areas in Nishidani District. 16 households were included in these areas and the other 49 households were not. On the other hand, because of the danger of the whole village, one relocation promotion area was set up and all households

relocated in Kotaka district.

Consequently, 65 cases of Nishidani District were divided into 3 categories; cases that stayed in the former district ("remaining households"), cases that relocated to the new housing complex by the project ("collective relocated households"), and cases that relocated individually ("individual relocated households"). Additionally, 24 cases of Kotaka District were divided into 2 categories of "collective relocated household" and "individual relocated household." Fig.2-3 shows the number of cases corresponding to each category.

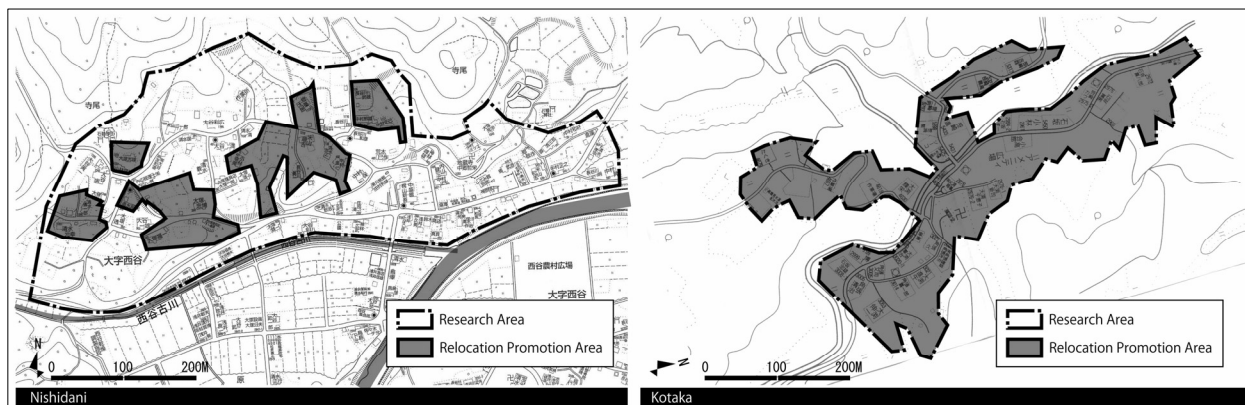


Fig.2-2 Research Areas and the Relocation Promotion Areas

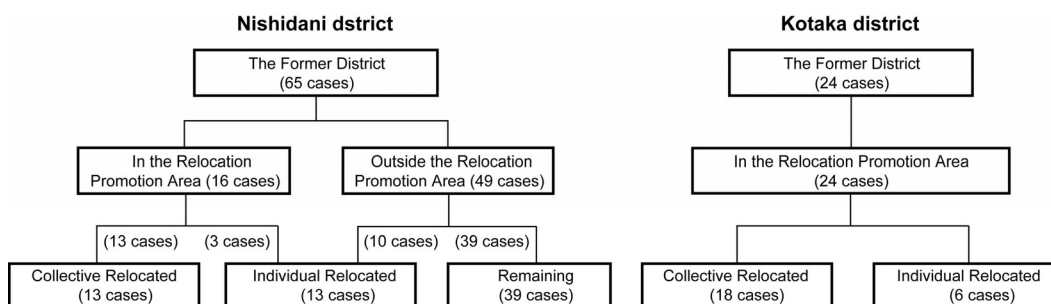


Fig.2-3 "remaining household" / "collective relocated household" / "individual relocated household"

2-3 Research Method

We applied two research methods as follows: 1) we had an interview with leaders of neighborhood associations to get information about residents before and after the earthquake. Generally, it is very difficult to get such data of relocated residents, in particular, those who move outside the village. However we were able to collect data for almost all of the residents, including the individual relocated residents in Nishidani District. 2) We conducted a questionnaire survey to grasp changes in daily life of residents before and after the project. Tab.2-3 shows the number of houses and responses according to the districts. The research period occurred between the 9th-11th and 26th-29th, November 2008.

Tab.2-3 The Rate of Response to the Questionnaire

		(A) Total Households	(B) Responding Households	(B/A) Rate of Response
Nishidani	Remaining	39	24	61.5%
	Collective Relocated	13	10	76.9%
	Individual Relocated	13	8	61.5%
	Total	65	42	64.6%
Kotaka	Collective Relocated	18	11	61.1%
	Individual Relocated	6	-	-
	Total	24	11	45.8%

3. Changes of Village Spaces

3-1 Land Use

This chapter examines how village spaces changed before and after the earthquake and how residents moved with the changes. Fig.3-1 shows changes in land use. As stated above, in Nishidani District, the relocation promotion areas were set in different areas. Consequently, there are many houses with remaining residents in the other areas besides relocation areas. Also a new housing complex was built as part of the project near the district and a shrine has been located in the northwest of the district.

In Kotaka District, as the whole area was set up as the relocation promotion area, all of the housing lots were replaced by green space or farmland (including abandoned areas). A new housing complex was built as part of the project about 3km away from the former village. A difference from Nishidani District is the existence of 4 units of public housing which were provided for low income households, such as single, aging residents. A shrine was located in the center of the village but it was also relocated to the new housing complex.

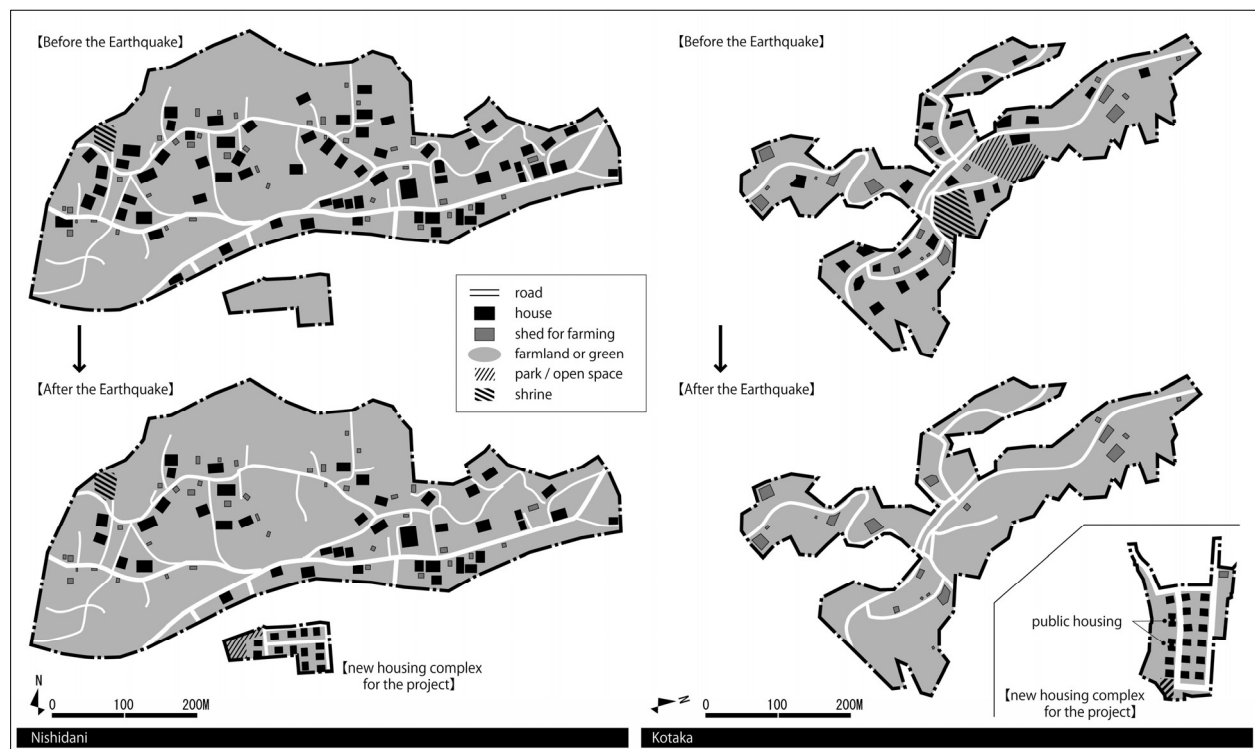


Fig.3-1 Change of Land Use

3-2 Moving of Residents

Fig.3-2 shows the moving of residents before and after the earthquake. In Nishidani District, 26 of the 65 households moved various distances. Because the new housing complex was built near the district, the moving distances of relocated households were between 200-400m. Though there is a difference of elevation, it is within walking distance. In individual relocated households, there are cases of both relocation in the village and outside the village. Of the 10 cases that relocated outside, 8 are in Nagaoka City and 1 is in Kashiwazaki City (another 1 case is unknown). The distances are 6km (3 cases), 6.5km (3 cases), 11km, 13km and 18km (1 case each).

On the other hand, in Kotaka District, 18 of the 24 cases were collectively relocated households. A new

housing complex was built about 3km away from the former village. The other 6 cases were individually relocated households. The relocation areas of the 6 cases are Kawaguchi Machi (2 cases), Nagaoka City (2 cases), Uonuma City (1 case) and Ojiya City (1 case).

Fig.3-3 shows household composition according to types of relocation. In Nishidani District, the ratio of "3-generation household" is about 30% of the remaining households, 50% of the collective relocated households and 75% of the individual relocated households. Namely, there is a tendency that large households relocated and small households remained. In Kotaka District, "single households" and "couple households" also relocated. It seems that there is an influence of public housing supplied in the new housing complex as stated above.

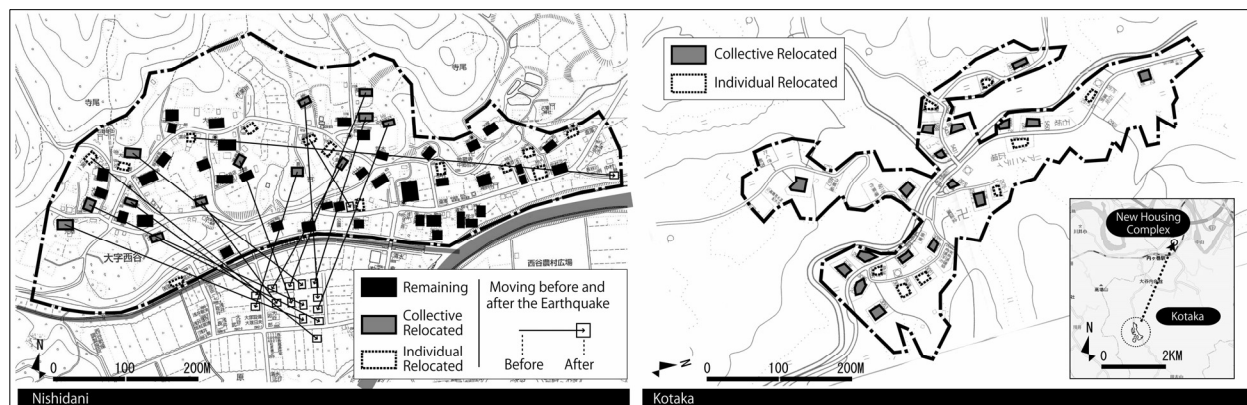


Fig.3-2 Moving of Residents

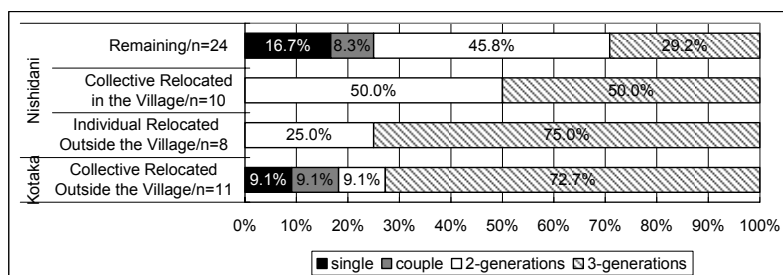


Fig.3-3 Household Composition according to Types of Relocation

4. Daily Life Changes for Relocated Households

4-1 Reasons of Decision of Relocation / Intention of Settlement

This chapter focuses on relocated households. Changes in the residents' lives after relocation are examined. Tab.4-1 shows their reasons for deciding relocation. The reasons were as follows: "wanted to remain in the village", "could move to a convenient place", "could move with neighbors", "public financial support", "followed the judgment of the village", "no reason in particular" and "own the land". It is thought that "wanted to remain in the village", "could move to a convenient place" and "could move with neighbors" are reasons based on a positive motive. While, "public financial support", "followed the judgment of the village", "no reason in particular" and "own the land" may be said to be reasons based on a negative motive.

In collective relocation households of Nishidani District, the response, "wanted to remain in the village" occurred the most (8 cases), next was, "could move to a convenient place" with 6 cases and then, "public financial support" with 5 cases. Many cases were based on reasons with a positive motive. In individual

relocation households, 6 of the 8 cases responded with, "could move to a convenient place," and 1 case each with "no reason in particular" and "own the land."

In Kotaka District, "followed the judgment of the village" was the most common response with 9 out of the 11 cases, following was, "could move with neighbors" with 6 cases, and then, "could move to a convenient place" had 3 cases. Thus 6 cases responded that they made their decision based on reasons with a positive motive, and the other cases are based on other reasons.

This difference of motive corresponds to the residents' life evaluation after the project. "Life satisfaction" in the table shows that 9 of the 10 cases of collective relocation households of Nishidani District were "very satisfied" or had "no regret", with only 1 case was "regretting a little." Of the individual relocation households, 7 of the 8 cases were "very satisfied" or had "no regret", and only 1 case was "regretting a little." Case Ng-2 and case Ni-6 of "regretting a little" relocated based on reasons with a negative motive. In Kotaka District, 5 of the 11 cases relocated based on reasons with a negative motive and it shows a tendency to correspond with a low reflection of life satisfaction after the move.

"Intentions of permanent settlement" in relocated places was generally high. Almost all cases responded with "continue living" and only 1 case in Kotaka District replied they "do not know," though in actuality, most of the relocated households purchased a newly-built house. It seems that many of them are repaying a home loan which reflects a high intention of permanent settlement.

Tab.4-1 Reasons for Deciding to Relocate

	Reasons for Deciding to relocate						Life Satisfaction		Intention of Settlement	
	Positive Motive			Public Financial Support	Followed the Judgment of the Village	No Reason in Particular	Own the Land	◎Very Satisfied	○Continue Living	△Do Not Know
	Wanted to Remain in the Village	Could Move to a Convenient Place	Could Move with Neighbors					△Regretting a Little	○No Regret	△Do Not Know
case Ng-3	●	●	—	●	—	—	○	◎	◎	
case Ng-5	●	●	—	●	—	—	◎	◎	◎	
case Ng-7	●	●	—	●	—	—	◎	◎	◎	
case Ng-8	●	●	—	●	—	—	◎	◎	◎	
case Ng-10	●	●	—	●	—	—	◎	◎	◎	
case Ng-4	●	●	—	●	—	—	○	◎	◎	
case Ng-1	●	—	—	—	—	—	○	◎	◎	
case Ng-6	●	—	—	—	—	—	◎	◎	◎	
case Ng-9	●	—	—	—	—	—	○	◎	◎	
case Ng-2	—	—	—	—	●	—	△	◎	◎	
Total	8	6	—	5	0	1				
case Ni-2	—	●	—	—	—	—	◎	◎	◎	
case Ni-3	—	●	—	—	—	—	○	◎	◎	
case Ni-1	—	●	—	—	—	—	◎	◎	◎	
case Ni-5	—	●	—	—	—	—	◎	◎	◎	
case Ni-8	—	●	—	—	—	—	◎	◎	◎	
case Ni-7	—	●	—	—	—	—	◎	◎	◎	
case Ni-4	—	—	—	—	●	—	○	◎	◎	
case Ni-6	—	—	—	—	—	●	△	◎	◎	
Total	—	6	—	0	—	1				
case K-4	—	●	●	—	●	—	○	◎	◎	
case K-6	—	●	●	—	●	—	◎	◎	◎	
case K-7	—	●	●	—	—	—	○	◎	◎	
case K-3	—	—	●	—	—	—	○	◎	◎	
case K-9	—	—	●	—	●	—	◎	◎	◎	
case K-11	—	—	●	—	●	—	△	◎	◎	
case K-8	—	—	—	●	●	—	△	◎	◎	
case K-10	—	—	—	●	●	—	△	△	△	
case K-1	—	—	—	●	●	—	△	◎	◎	
case K-5	—	—	—	—	●	—	○	◎	◎	
case K-2	—	—	—	—	●	—	△	◎	◎	
Total	—	3	6	3	9	1				

4-2 Relations between the Former Village and a New Address

Fig.4-1 shows how the difference in distance from each former village to a new address has related to the frequency of going back and forth between them. Each icon in the figure represents each household and indicates household composition and whether they utilize their farmland in the former village.

The moving distance to the new address of collective relocated households in Nishidani District is under 0.5km so it is within walking distance. Almost all cases are "visit almost every day" or "often visit." In

Kotaka District, the distance back is about 3km taking 10-15 minutes by car. But there were only 3 cases that responded that they "hardly visit" the former place, while 4 cases said they "visit almost every day" and 4 cases "often visit." In individual relocated households in Nishidani District, the distance is over 6km (about 18km for the furthest case). Despite such a long distance, "visit almost every day" occurs for 2 cases, "often visit" has 4 cases and "hardly visit" has only 2 cases.

The tendency would be expected that the longer the distance to the former village, the less frequent the visiting is. On the contrary, it can be said that the possibility of keeping the relations between two places is high even if the distance is over several kilometers. Additionally, all of the cases that "visit almost every day" and 10 of the 12 cases that "often visit" responded as such in order to "utilize farmland." On the other hand, all in the "hardly visit" category did "not utilize" farmland.

We conducted an interview with the 3 cases who responded with "not utilize" in Kotaka District. Case K-11 has not utilized farmland since the time before the earthquake and the other 2 cases have not since the time after relocation. The reasons are that "the farmland and warehouses were damaged by the earthquake" (case K-6) and "the farmland is quite a long way from home" (case K-5).

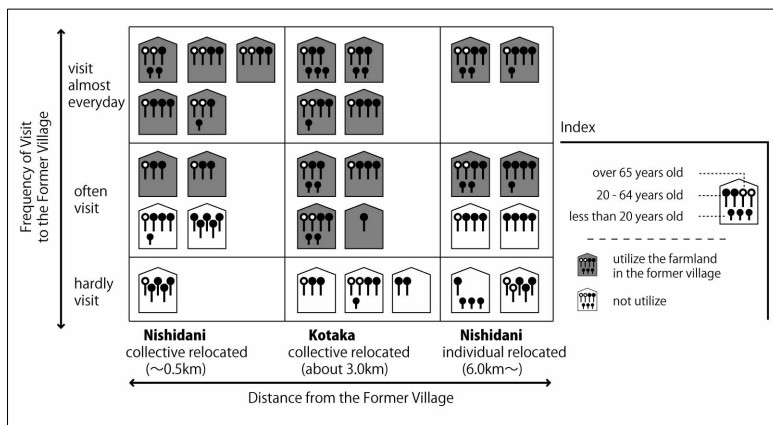


Fig.4-1 Distance from the Former Village and Frequency of Visit

4-3 Convenience of Daily Life

Fig.4-2 shows changes of the convenience of daily life such as shopping, commuting and seeing a doctor regularly. In individual relocated households of Nishidani District and the collective relocated households of Kotaka District, almost all the cases replied that life "became very convenient" or "became somewhat convenient." In particular, the improvement of the individual relocated households in Nishidani District is remarkable. On the other hand, in relocated households in Nishidani District, the response, "no change," occurs at a higher rate because of the new housing complex built in the same village. Even if the distance is short, it also means many relocate from steep slopes to flat areas and it is guessed that such relocation caused respondents to respond that life "became somewhat convenient."

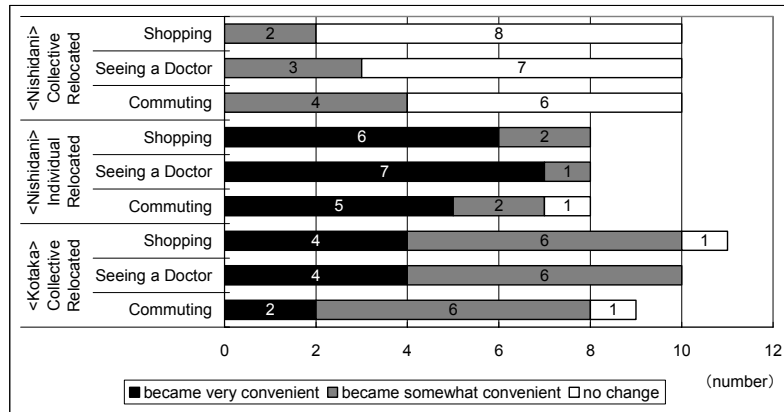


Fig.4-2 Changes of Convenience of Daily Life

5. Daily Life Changes for Remaining Households

5-1 Remaining rate / Reason for Remaining / Intention of Settlement

In Nishidani District, there were some remaining households outside of the relocation promotion area. As shown in Chapter 3, there was a trend of single or couple households choosing to remain. Remaining households have characteristic tendencies, not only in household composition, but also in geographic location. For example, the ground in the north is much higher than in the south, rising as high as 60m, whereas the lower elevation on the south side of the area is flatter and nearer the center of the village. It is therefore thought that the south side is relatively more convenient for daily life.

Fig.5-1 shows the rate of those remaining (ratio of the number of the remaining households to the number of households at the time of the earthquake) according to the elevation of places of residence. The ratio in the "under 60m" category reaches over 70%. Conversely, the ratio in the "60 - under 80m" category is 52.4% and in "over 80m," it is 38.5%. The lower the level is, the higher the remaining rate is. In other words, the number of households who relocated is larger in the inconvenient area.

Fig.5-2 shows the reason why each household chose to remain. "Not want to leave this place" has the highest number of responses (16 of 24 cases), next are, "little damage" or "difficult to move economically" with 11 cases each. "No inheritor" or "no other choice" each had 3 cases, and 2 cases responded with other reasons.

The "not want to leave this place" response could be regarded as a positive reason for remaining. On the other hand, it is hard to regard the other reasons as having direct positive motives for remaining. We define the former as "positive remaining" and the latter as "negative remaining", and show each intention of permanent settlement in fig.5-3. In the "positive remaining" category, "continue living" and "live for the time being" responses had 13 out of the 16 cases. But in the "negative remaining" category, there were 3 out of the 8 cases. The other 5 cases responded with "want to move" or "do not know."

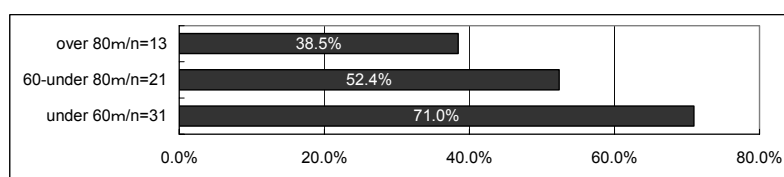


Fig.5-1 Rate of Remaining according to the Elevation of Places of Residence

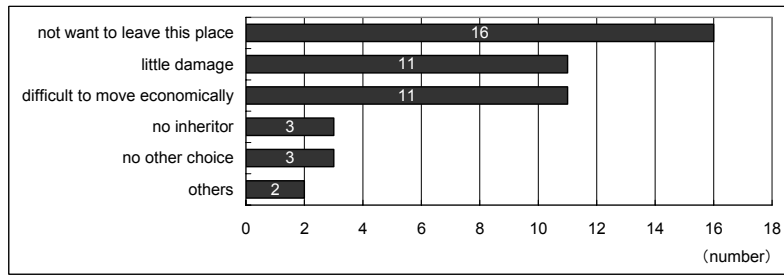


Fig.5-2 The Reason Why Each Household Chose to Remain (multiple answer)

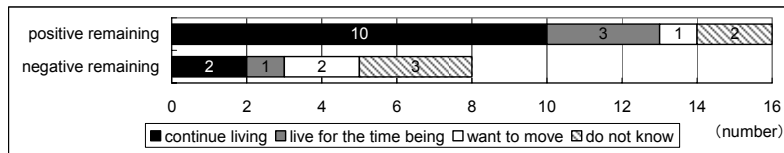


Fig.5-3 Intention of Remaining and Settlement

Furthermore, tab.5-1 shows the relationship between the elevation of places of residence, and the reasons for remaining and intention of permanent settlement of each household. The cases in the "negative remaining" category which made decisions based on a negative motive are included in each category of the elevation. The intention of permanent settlement of almost all such residents is not high. Conversely, the intention of permanent settlement of the cases in the "positive remaining" category is generally high. That is to say, the tendency indicates that residents who "wanted to stay and remained" regain life stability, but residents who "unable to move, so remained" do not.

In addition, the following point should be emphasized. "Not want to leave this place" is not necessarily the only reason for remaining. 9 of the 16 cases responded with not only the reason but also the reasons of "difficult to move economically" or "no other choice." These cases are unclear whether they wanted to continue living in their place for a positive reason or just had no other option. But it is sure at least that the evaluation of daily life after the project for the remaining households is generally less positive than of the relocated households in Nishidani District.

Tab.5-1 Reason for Remaining and Intention of Settlement

		Reasons for Remaining						Intention of Settlement
		Positive Motive	Negative Motive					
		Not Want to Leave This Place	Little Damage	Difficult to Move Economically	No Inheritor	No Other Choice	Others	◎Continue Living ○Live for the Time Being △Want to Move ? Do Not Know
over 80m	case Ns-10	●						◎
	case Ns-3	●	●					◎
	case Ns-2	●	●					?
	case Ns-1			●				?
60- under 80m	case Ns-13	●						◎
	case Ns-4	●	●	●				○
	case Ns-14	●	●	●				○
	case Ns-15	●	●	●				◎
	case Ns-11		●	●				◎
	case Ns-16		●	●				?
	case Ns-12						●	△
under 60m	case Ns-6	●						○
	case Ns-7	●						?
	case Ns-24	●						?
	case Ns-5	●						◎
	case Ns-18	●		●				○
	case Ns-22	●		●				◎
	case Ns-9	●		●	●			◎
	case Ns-21	●		●	●			◎
	case Ns-23	●	●				●	◎
	case Ns-8	●					●	△
	case Ns-17		●					◎
	case Ns-19		●					◎
case Ns-20						●	△	
Total		16	11	11	3	2	2	

5-2 Changes of Surroundings at Residence

It is thought that because the places of residence did not move in the cases of the remaining households, life activities such as shopping or commuting hardly change because of geographic convenience. However, it is guessed that the surroundings changed because of the absence of the neighbors who relocated. Fig.5-4 shows changes after the earthquake perceived around each residence according to the elevation of places of residence (index of icons in the figure follows Fig.4-2). The changes are mainly the following; one is the sensation of "neighboring environmental aggravation", and the other is "the decline of opportunity to have contact with the community."

Though cases pointing out both changes (the right line in the figure = "A. + B.") are shown in all elevations, 5 of the 6 cases are included in the "60-under 80m" elevation category or "over 80m." It is thought that the higher elevation areas are more greatly influenced by environmental changes. In addition, 2 of the 5 cases are single aging households, and another 2 cases are couple households, that is, 4 of the 5 cases are small households.

On the other hand, there is no case pointing out "the decline of opportunity to have contact with the community" in "over 80m", and there is only 1 case in "60-under 80m" (two lines on the left in the figure). In other words, almost all the cases demonstrate "the decline of opportunity to have contact with the community" at an elevation of more than 60m. In cases which show no change (the left line in the figure), 5 of the 6 cases are seen in the "under 60m" category.

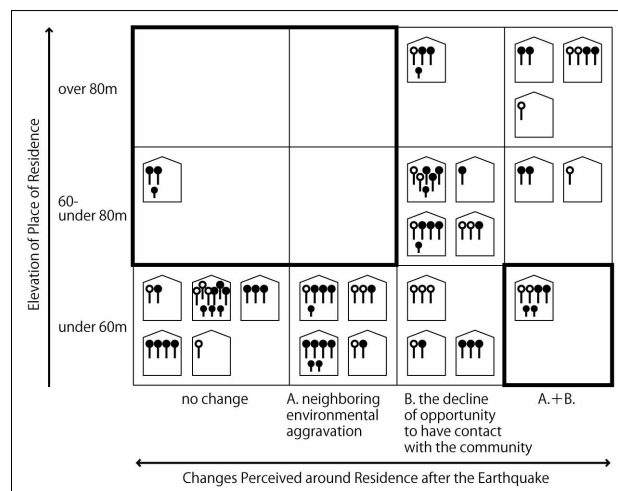


Fig.5-4 Changes Perceived around Each Residence after the Earthquake

5-3 Contact with Relocated Residents

Fig.5-5 shows the situation of social contact with the relocated residents according to elevation. There are no responses of "no change" (in comparison with the situation before the earthquake) in elevation of "over 80m". In elevation of "over 80m" and "60-under 80m", 9 of the 11 cases show "decrease" or "disappearance" of social contact with relocated residents. On the other hand, in "under 60m", "disappearance" is seen in only 1 case. Fig.5-6 shows the relationship of such situations as the social contact with relocated residents and their intention of permanent settlement. In the cases that contact with relocated residents is "disappearance" or "decrease", the ratio of "continue living" is about 20-30% but in "no change", the ratio is 100%.

Though many remaining households hoped to stay in their former places of residence, their current intention of permanent settlement is not necessarily high. There is an underlying influence by environmental changes. It is suggested that the level of the influence that environmental changes have on residents is decided by geographical factors, such as the elevation of a place of residence, which affects the loss of opportunities of human contact, which is reflected in a decline in intention of permanent settlement.

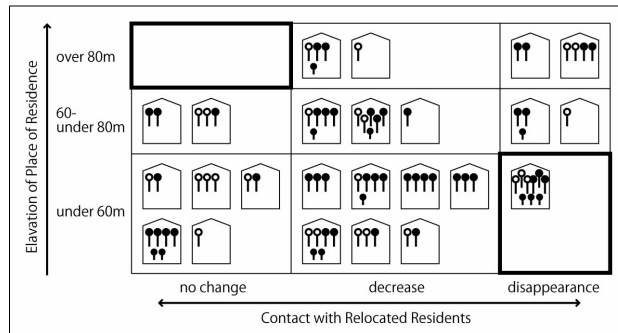


Fig.5-5 Social Contact with the Relocated Residents

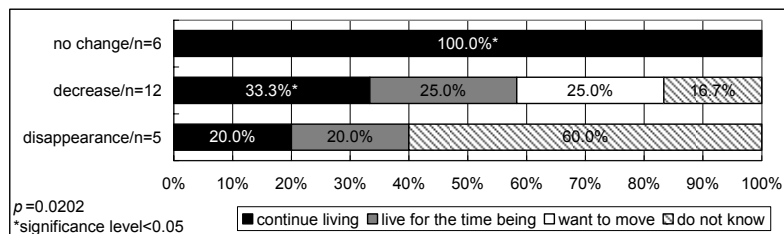


Fig.5-6 Contact with Relocation Residents and Intention of Settlement

6. Consideration and Conclusion

We focused on the differences of relocation patterns observed in the collective relocation after the Niigata Ken Chuetsu Earthquake and analyzed two cases, the "relocation of the whole village" and "spotty partial collective relocation." Results of the examination are considered and a conclusion is expressed.

At first, we consider the problem of relocation of the whole village of Kotaka District. One of the greatest problems of the relocation is that there are residents who chose to move based on a negative motive. There are three points at issue in this problem.

The first point is that of the residents' perception of the inevitability of relocation. It is necessary to make clear to them whether relocation of the whole village is unavoidable. In the relocation of Kotaka District, most of the households state that they "followed the judgment of the village." In a situation in which the probability of a second disaster occurring or the possibility of restoration is unclear, thereby making life extremely unstable, it is very difficult for them to judge whether they should leave the village or not.

The second point is how the motive of relocation influences the perceived quality of life after relocation. The cases of relocation that are not based on a positive motive have a tendency to report low satisfaction with daily life in comparison to those who moved based on a positive motive. The analysis shows that residents who moved based on a negative motive, like "followed the judgment of the village," continue to have thoughts of "regretting a little."

The third point is that of the relationships between the village before and after relocation. In Kotaka

District, many of the relocated residents do not cut the relationship with their former living places. They still often go back and forth between the present and former residences to utilize their farmland. Therefore, the change of living environment after the relocation should be construed as an "expansion" and not a "relocation." Regarding the choice of moving to a relocation project, the possibility of going back and forth between the present and former residences is important, in particular, for residents who moved based on a negative motive.

Next, we describe the spotty partial collective relocation in Nishidani District. This is regarded as a case which evaded the leading problem of relocation of the whole village, namely having residents who chose to move based on a negative motive. Though of course, spotty partial collective relocation can only be adopted provided that the damage is local and it is judged that relocation of the whole village is unnecessary. The issues of this case are the following.

First, there is the issue of whether there are benefits of the project is determined by the differences between remaining and relocating. The differences correspond to benefits or disadvantages in life after the deciding one or the other. Relocated households, for example, gain convenience in their everyday lives, while the households who remained sense a higher aggravation in the neighborhood and/or the decline of opportunities for social contact within the community. Relocated households showed a higher intention of permanent settlement but remaining households generally showed a lower intention.

The second issue regards whether residents can choose to remain or relocate by their own intention. An initial condition, such as household composition has the probability to determine whether residents decide to remain or relocate. The size of a household is often related to the amount of the household income. In Nishidani District, there was a tendency that large households relocated and small households remained behind. In other words, it indicates that the economic ability to move or rebuild a house factors highly into the decision making. Whether to relocate or remain may be a result of their own choice, however it is speculated that the decision also depends on whether they have enough means to move.

Thirdly, there is the issue of the intention to remain based on negative reasons. Positive and negative motives exist for deciding to remain, both "want to remain" and "must remain" result in the same action, however at the consciousness level, they are rather different. The cases in Nishidani District suggest that the contrast shows a difference in the intention of permanent settlement. Residents who had a positive motive to remain were able to achieve life stability later, while those who had a negative motive were not.

Considering the circumstances, the characteristics of relocation of the whole village and spotty partial collective relocation based on the intention of residents are arranged in tab.6-1. The spotty partial collective relocation in the village system permits not only "positive relocation" but also "positive remaining." It is advantageous for there to theoretically be no "negative relocation." However, the probability of having those in the category of "negative remaining" is high. The problem associated with it was stated above.

On the other hand, the relocation of the whole village to a location outside the village system does not create a "negative remaining" group. In addition, existence of all residents in the "positive relocation," category, including low income households who have difficulty acquiring their own houses, is made possible by the public housing provided in the new housing complex by the project. However, there is no option for a "positive remaining" group and as a result, it creates a "negative relocation" group.

Tab.6-1 Characteristics of the Relocation Systems

	Spotty Partial Collective Relocation in the Village (Nishidani district)	Relocation of the Whole Village outside the Village (Kotaka district)
Situation of Disaster-stricken Area	The damage is partial and it is judged that relocation of the whole district is unnecessary.	Relocation of the whole village must be examined by the factor of substantial danger or risk.
Residents' Intention of Remaining or Relocation	Intention of Relocation	
	"Positive Relocation" (want to relocate)	○ Because selecting the relocation promotion area is based on the input of each resident's decision, both "Positive Relocation" and "Positive Remaining" are permitted. Also, there is no "Negative Relocation" against resident's own wishes.
	"Negative Relocation" (must relocate)	—
	"Positive Remaining" (want to remain)	○
Intention of Remaining		
"Negative Remaining" (must remain)	× Small households tend to remain because they don't have the means to move. Many of remaining households feel neighboring environmental aggravation and/or the decline of opportunity to have contact with the community. Especially, the tendency is remarkable in a disadvantageous environment such as a high altitude area. As a result, there are cases that intention of permanent settlement is unstable. Most of them are "Negative Remaining" category, and not "Positive Remaining" category.	○ As a matter of course, relocation of the whole village goes along with intention of "Positive Relocation" category. Though in fact, it demands the means to build their own houses at a new housing complex. In Kotaka district, public housing was provided with the collective relocation project for residents who don't have the means. Consequently, it was possible for all of the "Positive Relocation" category to relocate. × Relocation of the whole village system cannot permit intention of remaining. Inevitably, "Positive remaining" category becomes "Negative Relocation" category of must relocate as a result. — Because there is no option for remaining in relocation of the whole village system, there is not a "Negative Remaining" category.

These two village restoration systems have a relationship supplementing each other. On the basis of this point, we mention two proposals. In the first place, it is a device to judge the inevitability of relocation of a whole village. Objective information to make sure early on whether the village area can function as a place of residence again is required. At the same time, a democratic decision-making system in the community based on the information is necessary. Also, the spotty partial collective relocation in the village system should be examined as one of effective choices when it is judged that restoration of the village area is possible.

In the second place, there are unavoidable conditions for adopting the spotty partial collective relocation system. The supply of public housing in a new housing complex by the project which was tried in Kotaka District is effective in decreasing the number of people in the "negative remaining" group. It seems that this is an indispensable provision, not only because of the consideration of low-income residents, but also the distribution of benefits of the collective relocation project. As we clarified in Chapter 5, the differences between the benefits and disadvantages between relocation and remaining are extensive. As the state that approved it, to justify "the flexible setting up of the relocation promotion areas depending on the circumstances of each household" is logic of the side of people who can move.

Finally, we consider issues in the future. First of all, the validity of the findings by the substantiation of research samples must be confirmed. It is necessary to collect much more data, including that of other villages. Furthermore, an ideal way for the collective relocation as one of the issues of village revival for the long-term span must be examined. Likewise, aspects of semi-mountainous areas vary greatly, so the accumulation of data from focusing on many cases of collective relocation in various villages is indispensable to confirm the universality of the results of this study.

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