

## 再定住集落における居住環境の再構築に関する調査研究

### —台湾南部・好茶(ハオチャ)村の事例研究—

#### Transformation of Settlement and Community Relationship in Taiwan The Case Study of Hao-Cha Village, Pingtung County, Taiwan

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2009年のモーラコット台風により、台湾の多くの少数民族が深刻な被害を受けた。その後台湾政府は、被災地域を含めた、災害リスクの高い山間部区域での居住を制限し、住民たちを別の集落へ移住させた。本研究では Rinari 集落へ移住した好茶(ハオチャ)部族について、移住後の居住環境の変容を明らかにした。さらに、近隣住民の血縁関係と居住地の関係を分析した。住宅の増改築とあわせて、世帯構成を分析したところ、住宅の増改築と世帯構成との間に相関が見られた。また、移住先での土地・住宅の割り当ては抽選によるものであったが、実際は好茶部族内の元々の地縁・血縁関係による集住がここでも継承されていることが確認された。

*Keywords:* Relocation, Housing extension, Blood relationship, Ethnic minority, Post-disaster reconstruction  
再定住、増改築、血縁関係、少数民族、災害後再建

### 1. Introduction

The United Nations pointed out that Taiwan is more vulnerable to the impact of disasters than other countries in the world due to the special geographical location which is prone to typhoon and earthquake. In recent years, the degree of disasters has intensified in Taiwan. Extreme climate events had triggered Typhoon Morakot which brought about 3,000 mm rainfall in a single day in 2009. This typhoon had caused a serious disaster to the south part of Taiwan. The Hao-Cha tribe were badly affected with flood and landslide. Consequently, the whole village was buried in landslide. The villagers were forced to move and resettled in another location.

### 2. Objective and Data Collection

This study will discuss some of the main objectives such as: 1) the neighborhood relationship of the Hao-Cha tribe in the previous settlement and the new settlement. 2) the household inheritance pattern of the Hao-Cha tribe, affecting the housing extension. 3) The changes of the housing extension from 2012 to 2017 in Rinari settlement and the relationships between housing extension and family separation pattern.

*Methodology:* The fieldworks took place from August 2017 to March 2018 in Rinari settlement, Pingtung County, Taiwan. Primary data were gathered through interviews, aerial photographs and observation in Rinari settlement. Secondary data of slate house preservation project in old Hao-Cha settlement were also collected from the National Taiwan University.

### 3. Overview of the Hao-Cha village and Resettlements processes

#### 3-1. Ethnic group and the location

Hao-Cha tribe belongs to the indigenous ethnic group of "Rukai\*." The total population of Rukai are 12,785 people (National Council for Aborigines, 2014) which can be found in different regions, using different language and having diverse culture divided into three groups: a) West Rukai Group (also known as the "Rukai Group"), including Hao-Cha tribe. b) East Rukai Group (also known as "Da Nan Group"). c) Three-tribe Group (also known as "Zou Kou Group"). Traditional Hao-Cha tribe is headed by a chief with supreme authority which is supported by other aristocrats and civilians.

#### 3-2. From Old Hao-Cha to New Hao-Cha

The total population of Hao-Cha tribe was about 500 to 600 people (120 households) between 1920 and 1930. In the early post-war period (1945 - 1955), the population increased to approximately 1,000 people (190 households) due to the improvement of medical and healthcare. However, the increase in population had greatly reduced the availability of farmland causing food insufficiency. Therefore, the livelihood activities such as hunting, logging trees in the forest and traditional trade in exchange for money were strictly prohibited by the government, which had much impact on the households' economic situation. Besides that, the road around the village was bad condition not to make easy access to medical treatment, those reason made the population decrease to less than 400 people (155 households) in early 1970s. Hence, in July 1974, the Taiwanese Government approved to relocate the Hao-Cha tribe near a river terrace, about 250 meters above sea level on the left bank of Ai-Liao Nan River. The Hao-Cha tribe called it "Tulalekelre" in their local language, and it was 11 km away to the nearest town. The Government constructed public facilities such as drainage ditch, roads and bridges after the relocation of the

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village. After 3 years planning and construction, the whole Hao-Cha tribe moved into the New Hao-Cha settlement in 1977.

### 3-4. From New Hao-Cha to Rinari

In July 1996, Typhoon Herb brought along heavy rainfall and hit the New Hao-Cha settlement. Due to the heavy rain, rocks and earth from the mountains slipped down into the settlement and buried several houses, and killed four elderly people. This was the first catastrophic event occurred after the resettlement to the New Hao-Cha.

Unfortunately, On August 8<sup>th</sup>, 2009, Typhoon Morakot brought more than 2,000 mm of rainfall in a day. The New Hao-Cha settlement was flooded and buried by landslide. The villagers were forced to give up the New Hao-Cha settlement.

After spending almost 3 years in temporary settlement, the Hao-Cha tribe finally moved into the another new settlement called “Rinari” in 2010. The relocation project was mainly conducted by World Vision of Taiwan. This was the first post-disaster settlement that practice self-build system in Taiwan. There are more than 500 households in the settlement and had been regarded as one of the largest reconstruction settlement projects after Typhoon Morakot.

## 4. Analysis and findings

### 4-1. Zone Changes

Data from all three sites (Old Hao-Cha, New Hao-Cha and Rinari) were gathered and compiled to form resident’s list for each settlement. Factors like neighborhood relationship were identified based on the resident’s families and relatives’ location. In order to analyse the relationship and to understand the variation, specific zoning systems were applied for each of the settlement respectively. The zoning systems were based on the traditional tribal zoning (Old Hao-Cha) or the modern administrative zoning (New Hao-Cha, Rinari) (See Fig.3).

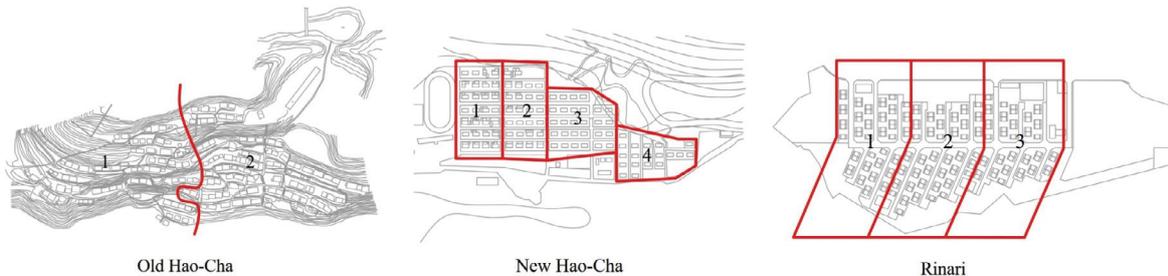


Fig. 3 Zoning system of three sites

#### (1) First migration period (From Old Hao-Cha to New Hao-Cha in 1977)

From Table 1, there were 67 households that moved from Zone O1 of the Old Hao-Cha to the New Hao-Cha settlement. 12 households moved into

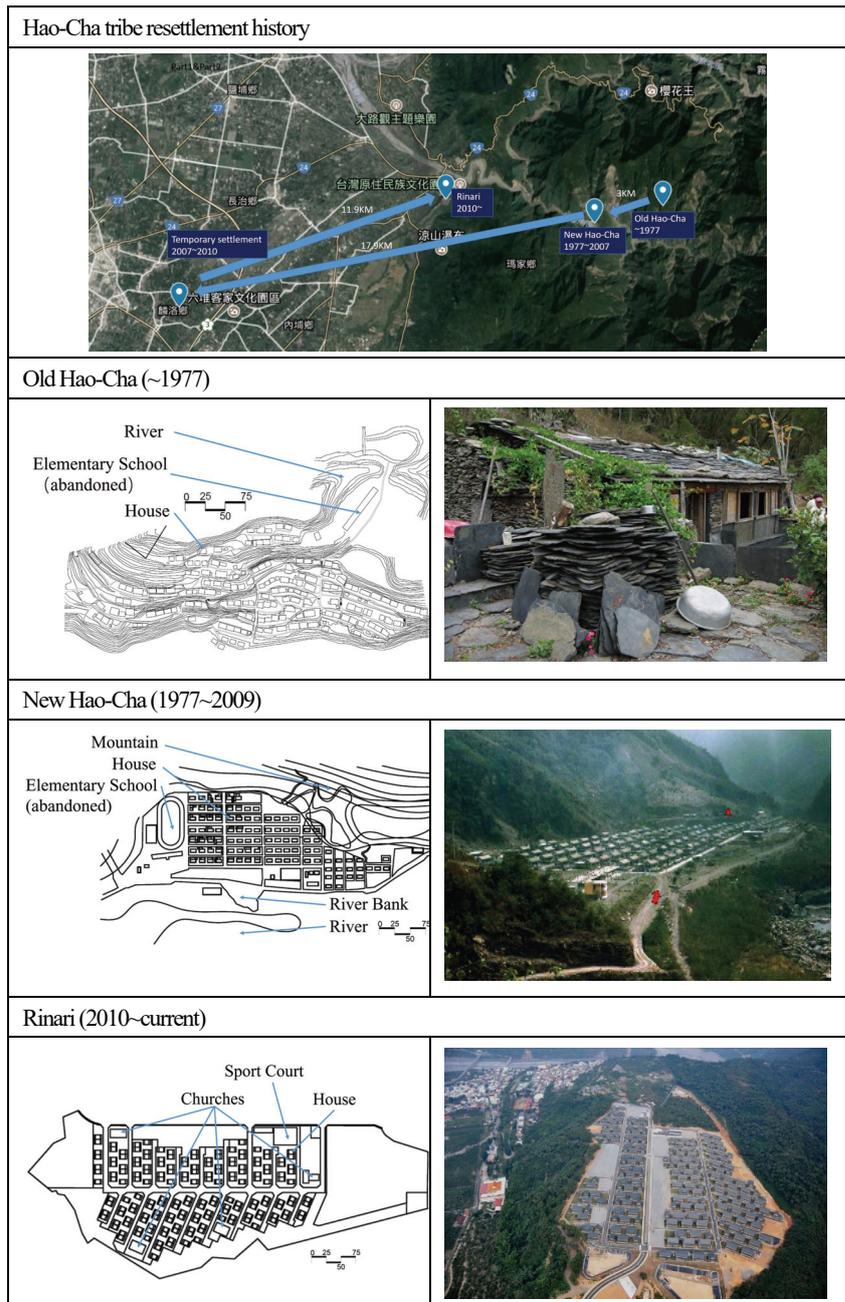


Fig. 2 Site plan and photos of the three settlements

Zone N1, 20 households moved into Zone N2, 27 households moved into Zone N3 and 8 households moved into Zone N4 in the New Hao-Cha settlement. The highest number of household was from Zone O1 of the old settlement to Zone N3 of the new settlement. As for Zone O2 of the Old Hao-Cha, there were 88 households that moved into the New Hao-Cha settlement. 26 households moved into Zone N1, 24 households moved into Zone N2, 19 households moved into Zone N3 and Zone N4 respectively in the New Hao-Cha settlement. The highest number of household from Zone O2 of the old settlement was into Zone N1 of the new settlement. However, 4 households were not able to define its immigration history.

(2) Second migration period (From New Hao-Cha to Rinari in 2010)

From Table 2, there were 38 households that moved from Zone N1 of the New Hao-Cha to the Rinari settlement. 9 households moved into Zone R1, 15 households moved into Zone R2, and 14 households moved into Zone R3 in the Rinari settlement. The highest number of household was from Zone N1 of the New Hao-Cha settlement to Zone R2 of the Rinari settlement.

As for Zone N2 of the New Hao-Cha, there were 46 households that moved into the Rinari settlement. 15 households moved into Zone R1, 21 households moved into Zone R2, and 10 households moved into Zone R3 respectively in the Rinari settlement. The highest number of household from Zone N2 of New Hao-Cha settlement was into Zone R2 of the Rinari settlement. As for Zone N3 of the New Hao-Cha, there were 46 households that moved into the Rinari settlement. 22 households moved into Zone R1, 11 households moved into Zone R2, and 13 households moved into Zone R3 respectively in the Rinari settlement. The highest number of household from Zone N3 of the New Hao-Cha settlement was into Zone R1 of the Rinari settlement. In Zone N4 of the New Hao-Cha settlement, there were 29 households that moved into the Rinari settlement. 7 households moved into Zone R1, 13 households moved into Zone R2, and 9 households moved into Zone R3 respectively in the Rinari settlement. The highest number of household from Zone N4 of the New Hao-Cha settlement was into Zone R2 of the Rinari settlement. However, 18 households were not able to define its immigration history. The result implies that households who stayed previously in the same zone tend to move together to a new zone in the new settlement.

Table 1. Zone changes

(from Old Hao-Cha to New Hao-Cha)

		Old Hao-Cha	
		Zone O1	Zone O2
New Hao-Cha	Zone N1	12	26
	Zone N2	20	24
	Zone N3	27	19
	Zone N4	8	19
Total		67	88
N/A		4	

\*Note: Letter with frame represents the highest household migration

Table 2. Zone change (from New Hao-Cha to Rinari)

		New Hao-Cha			
		Zone N1	Zone N2	Zone N3	Zone N4
Rinari	Zone R1	9	15	22	7
	Zone R2	15	21	11	13
	Zone R3	14	10	13	9
Total		38	46	46	29
N/A		18			

\*Note: Letter with frame represents the highest household migration

4-2. Housing extension

The Taiwanese Government gave each of the Hao-Cha households an amount of NTD 100,000 (USD 3,333) for front door renovation and decoration. The policy was established after the housing construction was completed. In the Rinari village, the study recorded house's front yard plan and efforts were made to overlap the base map with houses that have front yard extension as well as identifying the inheritance relationship. The study found that the front yard design can be categorized into five different types (See Fig. 4). Most of the households which had been categorized as "Original Type" did not have the inheritance relationship with the neighboring household. Households that does not fall in the "Original Type" showed significant inheritance relationship with the neighboring household in most cases. The result shows that family structure and the inheritance relationship are closely correlated.

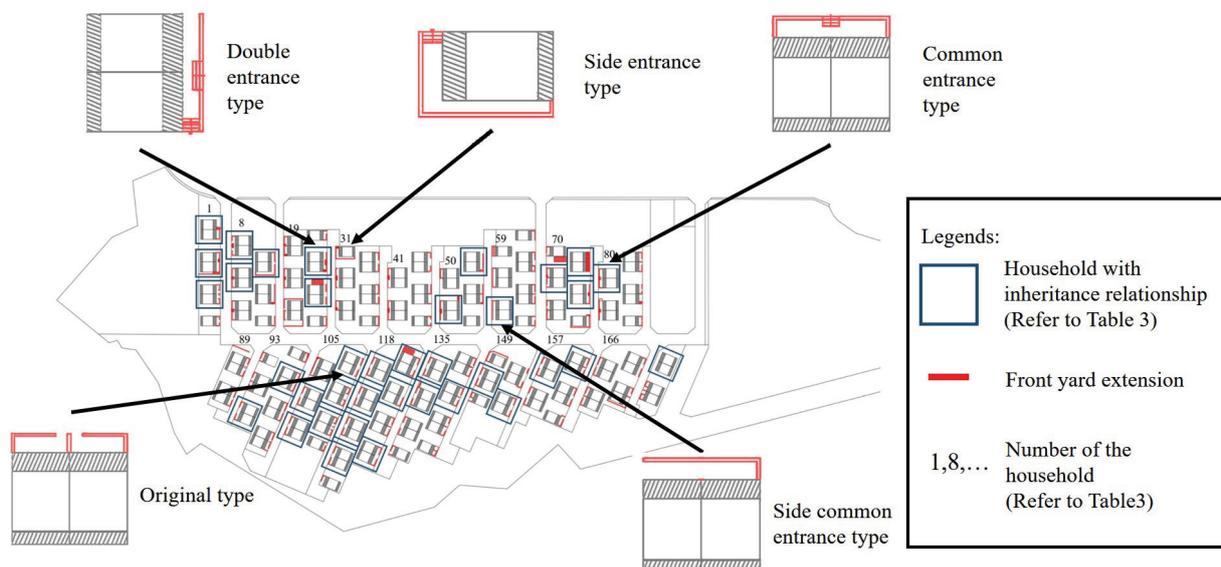


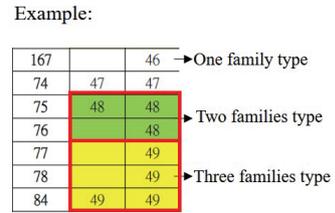
Fig.4 Five types of front yard extension typologies

### 4-3. Households inheritance change

The interview of local people and secondary data showed that household separation system can be found through matching of the residents in the three settlements from the resident's list. The study found interesting findings such as the pattern of household separation during New Hao-Cha settlement period to Rinari settlement period. There are four patterns types which are: 1) One family type: The household did not separate to any other household (54 households). 2) Two families type: The household separated to two different households (38 households). 3) Three families type: The household separated to three different households (9 households). 4) Four families type: The household separated to four different households (1 household). (See Table. 3)

Table.3 Households inheritance pattern (From New Hao-Cha to Rinari)

H.N(R)	F.N(N)	F.N(R)												
1		1	32	20	20	64	41	41	100		64	140	85	85
2	1	1	45		20	65		42	103	65	65	147		86
3	2	2	46		20	30	42	42	105	67	67	141	86	86
4		2	131		20	66			106		68	142	87	87
5	3	3	33	21	21	67	43	43	137	68	68	144	88	88
6		3	34	22	22	69	44	44	138		68	145		88
7	4	4	35	23	23	71		45	107		69	146	89	89
8		5	101		23	72	45	45	108	69	69	148	90	90
9	5	5	102		23	73		46	109		70	149		
10		6	36	24	24	166	46	46	110	70	70	150	91	91
11	6	6	37	25	25	167		46	111	71	71	151		91
12		7	38	26	26	74	47	47	112		71	152	92	92
153	7	7	39	27	27	75	48	48	113		72	155	93	93
154		7	159		27	76		48	114	72	72	156		93
13	8	8	40	28	28	77		49	115	73	73	157	94	94
14		9	41			78		49	116		73	158		94
15	9	9	42	29	29	84	49	49	117	74	74	160	95	95
143		9	43			79	50	50	118		75	161	96	96
16	10	10	44	30	30	80	51	51	119	75	75	162		96
17		11	47	31	31	81		51	120		76	163	97	97
89	11	11	48	32	32	82	52	52	121	76	76	164		
90		11	49	33	33	83	53	53	122		77	165	98	98
18	12	12	51	34	34	177		53	123	77	77	168	99	99
19			52		35	85	54	54	124		78	169	100	100
20		13	53	35	35	86	55	55	125	78	78	170	101	101
70	13	13	54	36	36	87	56	56	132		78	171	102	102
21		14	55		36	88			126	79	79	172	103	103
22		14	56			91	57	57	127		80	173	104	104
23	15	15	57			92	58	58	128	80	80	174		105
24	16	16	58	37	37	93	59	59	129	81	81	175	105	105
25	17	17	59	38	38	94	60	60	130		81	176		105
26		18	68		38	95	61	61	133		82	50		
27	18	18	60			96		62	134	82	82	104		
28	19	19	61	39	39	97	62	62	135		83			
29		19	62		40	98	63	63	136	83	83			
31			63	40	40	99	64	64	139					



**Legends:**

- H.N(R) Household number in Rinari (Refer to Fig.4)
- F.N(N) Family number in New Hao-Cha
- F.N(R) Family number in Rinari
- One family type: The household did not separate to any other household (54)
- Two families type: The household separated to two different households (38)
- Three families type: The household separated to three different households (9)
- Four families type: The household separated to four different households (1)
- N/A: The household cannot be identified (12)

### 5. Discussion

From the analysis, it was found out that households who stayed previously together in the same zone during the same migration period preferred to move together to a new zone in the new settlement. Households formed some 'preference' when moving to the next settlement. This can be implied that households desire to move together due to the existence of sub-tribal relationships in the Hao-Cha tribe which is made up of families and relatives. Additionally, the initial house distribution in Rinari settlement was given out randomly. However, due to the sub-tribal relationship aspect, houses were exchanged unofficially based on the consensual agreement. Data collected from the respondents as well as secondary data were sufficient to explain the inheritance pattern of the households, ranging from single family-type (no inheritance relationship) to four families-type. Moreover, there are 177 households' that conducted renovation on their front yard which can categorized into Original-type, Side common entrance-type, Double entrance-type, Side entrance-type and Common entrance-type. The overlapping of household's location and their front yard renovations revealed that family structure and the inheritance relationship are correlated. For instance, a family with two households that shares the inheritance have to share the same entrance and front yard spaces. However, if the two households are not related, petitions are built to segregate individual spaces. As a conclusion, the front yard design does not only reflect the original lifestyle of the Old Hao-Cha settlement but also responded to the need of each household and the inheritance relationship.

### Note

\*1 Rukai is the seventh-largest of the 14 officially recognized indigenous groups in Taiwan. The Rukai means "people living in the mountain".

### References

- Lin, F. J., Lee, C. F. (2007). Old Hao-Cha settlement preservation and social development project. National Taiwan University.
- Sasala, T. (2016). History research of Hao-Cha tribe. Taipei: Taiwan Historica Publishing.
- Hsieh W. L. (2011). Permanent houses accommodation and adaptation research after Typhoon Morakot. Taipei: Ministry of Interior, Taiwan.
- Christopher B. F., Vicente R. B. (2014). Intergovernmental panel for climate change. United Nation.