



## **THE COMPARATIVE STUDY ON POST-QUAKE RURAL COMMUNITY'S RECONSTRUCTION FOR TAIWAN CHI-CHI EARTHQUAKE IN 1999**

**PEI-CHUN SHAO<sup>1</sup>, CAI-PING, JIANG<sup>2</sup>**

### **SUMMARY**

Taiwan Chi-Chi Earthquake which happened in September 21st, 1999 struck middle areas of Taiwan and caused serious damages. How to undertake reconstruction for the rural communities becomes a main task after Chi-Chi Earthquake. In this study, three rural communities with successful reconstruction are discussed to uncover factors which will affect reconstruction through analyzing their reconstruction mechanisms. What the purpose of this study is to understand the key elements for rural community's reconstruction and to suggest a feasible mode for rural community's reconstruction. As the result, the factors which will affect rural communities' reconstruction are as follows: co-operation between professional consultants and community's residents, holding activities to concentrate consciousness of residents, creating reconstruction fund spontaneously, undertaking personnel training plan and setting community's developing vision.

### **INTRODUCTION**

On 21th September 1999, the earthquake happened which was M7.3, and put about 2,200 people into death. The damages in rural areas near Nantou County and Taichung County were the most serious. The earthquake killed the lives and made the rural communities should face the problems of lacking function of country economics and struggling into the difficulties of residential reconstruction.

Based on the type of community empowerment directing reconstruction after disaster means to combine community power and identification, organizational operation, integration of inside and outside resources, and characteristics of local natural environment and human ware to achieve the goals of reconstruction after disaster by resident's participation. So far, there have been many illustrations of community construction directing reconstruction after disaster. Owing to many disastrous communities at rural areas and the residents lack the will to take part in public affairs positively, this research focus on the agricultural communities and expect contribute the references about reconstruction after disaster of country community (Shao, 2003).

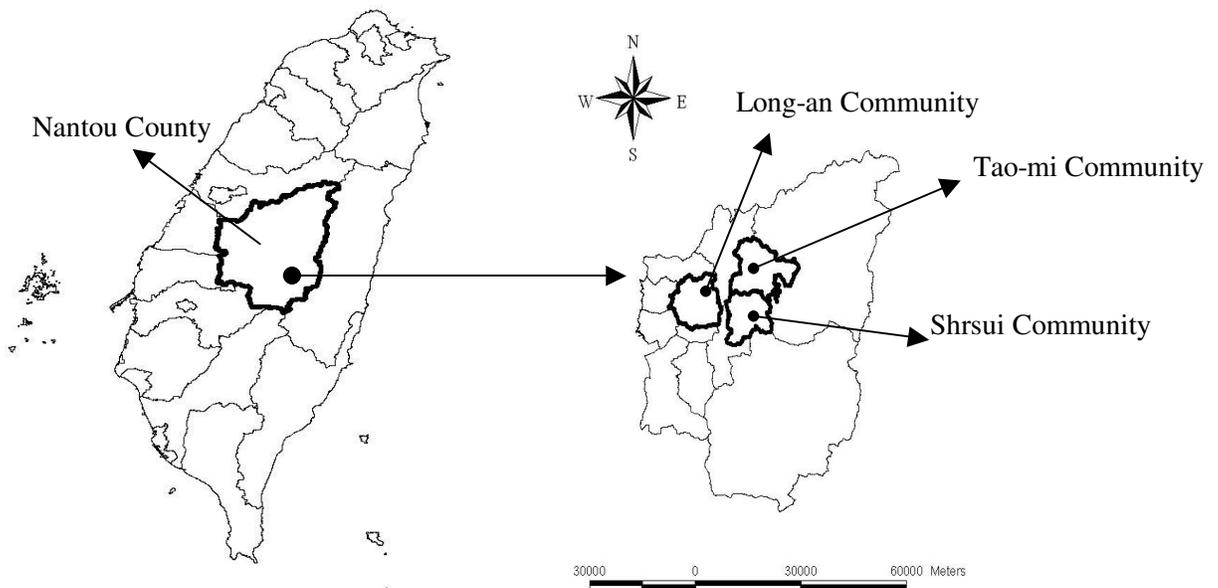
---

<sup>1</sup> Assistant Professor, Dept. of Land Management and Development, Chang Jung University, Taiwan

<sup>2</sup> Master, Dept. of Land Management and Development, Chang Jung University, Taiwan

According to the reasons above, the cases for studying in this research are limited into three communities: Shrsui community at Yuchih village in Nantou County, Tao-mi community in Pu-Li town, and Long-an community at Chun-Liao village (Please refer to Figure 1). The purposes are raised to under points:

1. Discussing the beginnings and sources of reconstruction in country community.
2. Analyzing the reconstruction process and mechanism of three communities.
3. Suggesting a feasible mode of rural community's reconstruction to other rural communities for reference.



**FIGURE 1. LOCATIONS OF THREE COMMUNITIES.**

## **RESEARCHING METHODS**

### **Field Survey**

The field survey was adopted to deal with the research and to use the relative documents including historical records, community publications, experts' reports and governmental publications to be the secondary materials. This could be able to grasp clearly the contents and process of the community reconstruction.

### **Literature Review**

According to the materials provided by two groups that are divided into two parts which are communication organizations and experts, the literature was reviewed to analyze participation and supporting system of community reconstruction.

### **Deeply Interview**

Deeply interview was also held to comprehend the process and contents of these communities reconstruction which cannot be grasped by documents and to search for the factors effecting post-quake reconstruction.

### **Inductive Analysis**

Organizing the results from field survey, literature review and interview, the feasible mode of rural community's reconstruction will be suggested.

## **BACKGROUND FOR COMMUNITY EMPOWERMENT AND RENAISSANCE**

The section is composed of some ancient theories that are vital to this research. It is worthy of being noticed that we integrate the theories according to different roles and identifications from several community organizations, expert groups, and try to make models of community reconstruction.

### **Reconstruction of Community Organizational Participation**

Rothman and Tropman divided Reconstruction of Community Organizational Participation into three parts (Rothman and Tropman, 1987; Jwan and Wu, 2000):

#### *Mode of local developing*

This mode emphasizes on "process" and hope residents can cooperate with each other to build and strengthen their volubility. Then they can put their emotion into reconstruction.

#### *Mode of social planning*

This mode emphasizes on "mission" and believes experts and scholars can make rational decisions and choose the proper strategies to overcome and solve the communities' issues quickly and efficiently.

#### *Mode of social action*

It includes missions and targets, and also cares about experts' abilities to solve community problems.

From the modes above, it is found that mode of local developing is the natural way to reach targets and mode of social planning has the tendency emphasizing efficiency. Comparing other two modes, mode of social action is the medium action between local developing one and social planning one.

### **Reconstruction of Professional Groups' Participation**

There are two paths in this mode. One is up to down by government, and the other is that residents take part in from toe to head voluntarily. Both two paths should need experts to manage and cover them, no matter partly or totally. There are five types which experts are involved in under the next paragraph(Chu, 1996) :

#### *Mode of substantial cultural facilities construction*

- a. Heritage Preservation.
- b. Village and Street preservation.

#### *Mode of unsubstantial cultural facilities construction*

- a. Helping local authority deal with historical materials and putting them into publication.
- b. Helping local authority celebrate culture activities and introducing them to people who do not live there to let them love local culture.

#### *Mode of economical development*

- a. Exploring local resources, building selling system, and spreading it out.
- b. Building tourism industry to change local-environments.

#### *Mode of community reconstruction*

- a. Designing the ideals pushing residents to participate community activities.
- b. Building local characteristics and advantages, and concreting will.

### *Mode of administration*

#### a. Discussion in Public Administration.

Country reconstruction is based on the bridge between proper rule-making and supplement-providing of government department, roles of professional groups in promoting residents to realize the importance of reconstruction, and residents' positive acting (Chang, 2000). Therefore, combing three parts to an organic system will make sense in post-earthquake reconstruction.

## **CASE STUDY**

Three communities are selected for case study by different characteristics of reconstruction after earthquake. They are Shrsui community at Yuchih Village in Nantou county, Tao-mi community in Po-Li town, and Long-an community at Chun-Liou village. The research analyzes three communities in four viewpoints, which are background, reconstruction process, main subject of reconstruction and reconstruction mechanism.

### **Shrsui Community**

#### *Background*

Shrsui Community is about 60 hectare. There are 232 persons living here, and most of them are elders. During the post-quake period, there were 25 households destroyed completely and 6 households semi-destroyed. Most residents lived here are farmers who plant arecas, vegetables, and flowers. Besides that, the community also has plenty resources of pottery clay used to make potter, and have preserved early-life art works such as bamboo wares.

#### *Reconstruction process*

After 921 earthquakes, Shrsui community constitutes the Reconstruction Committee on 28th October 1999. Because of being evaluated as one of 74 communities of rural reconstruction by Agriculture Committee, residents decide to develop their culture such as pottery-making and keep environment naturally. Their purposes are making their community be a zone of Tea-Pottery culture and natural surroundings.

On the other hand, corresponsive governmental departments like Culture Building Committee provides some supports to Shrsui community and expect them can promote developing forest environmental links, environmental lessons, and organically management in tea-farm. About reconstruction situation, please refer to Picture 1.



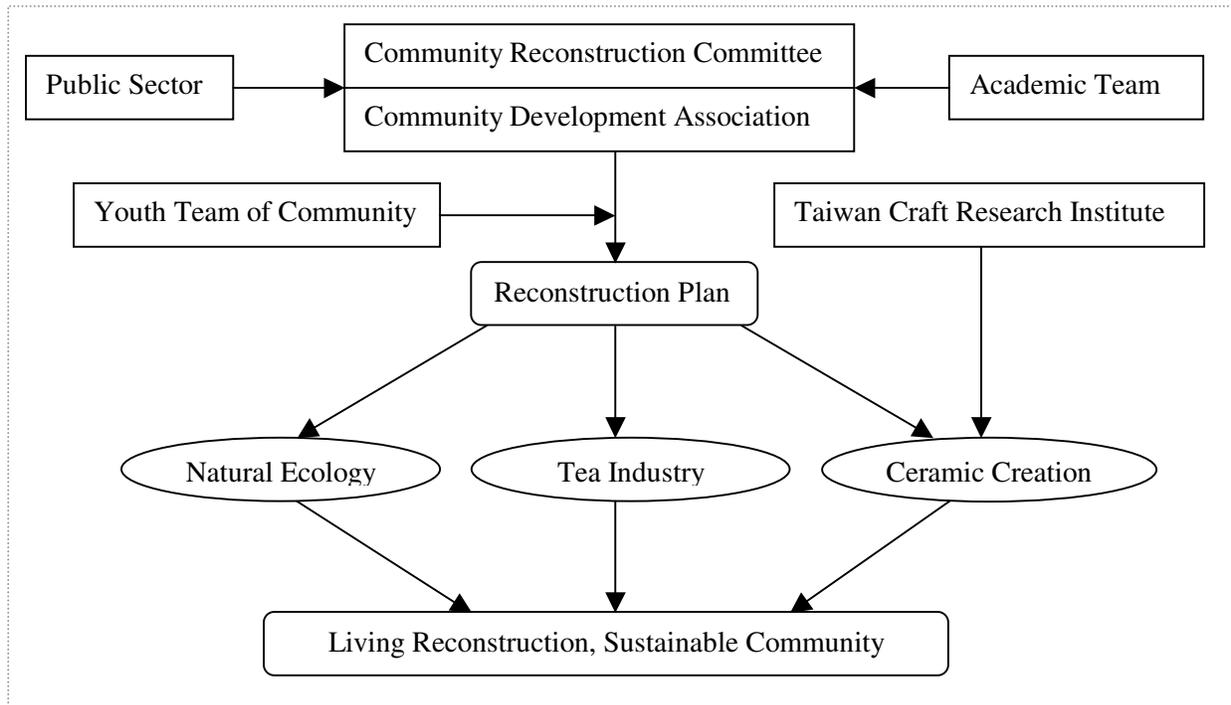
**PICTURE 1. RECONSTRUCTION SITUATION OF SHRSUI COMMUNITY.**

### *Main subject of reconstruction*

The capital problem Shrsui Community should face is how to keep the resource of local person and develop multiple industries. Outer groups cannot stay at the community permanently, so residents should raise their professional technology and prepare to go far away.

### *Reconstruction mechanism*

About the reconstruction mechanism of Shrsui community, please refer to the Figure 2.



**FIGURE 2. RECONSTRUCTION MECHANISM OF SHRSUI COMMUNITY.**

### **Tao-mi Community**

#### *Background*

Tao-mi village in Po-Li town are about 18 km<sup>2</sup>. The populations are about 1200, and there are almost 168 households. During the period of 911 earthquakes, there were 168 households destroyed completely and 60 households semi-destroyed. The destroyed rate is about 60%. Tao-mi village is a typical agricultural village and main economical corps is bamboo and mushroom. There are abundant swamp and plenty of plants and organisms.

#### *Reconstruction process*

After 921 earthquakes, residents organized Tao-mi Community Reconstruction Committee and went with professional groups and government department to design a new Tao-mi village in the future. On the other hand, Philip Electrical Company supply funds to individual's developing and training in industrial transformation. Besides the help from privacy department, government also prepare found to them. From 2000 to 2003 D.C, the found which were provided to Tao-mi community by variable environmental development projects were totally about three billion dollars. About community reconstruction situation, please refer to Picture 2.



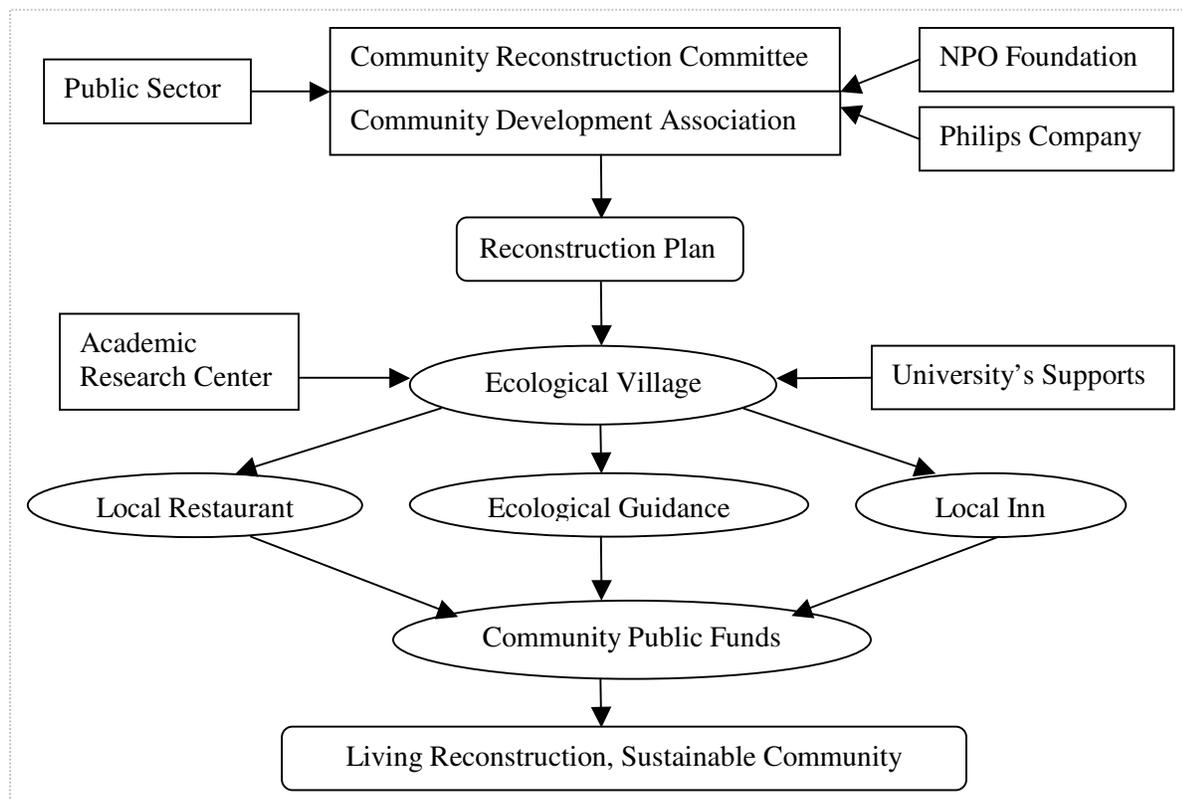
**PICTURE 2. Reconstruction situation of Tao-mi community.**

*Main subject of reconstruction*

It established the typical mode that residents took part in reconstruction such as resident-learning mechanism, and identification system in environmental explaining. But there are problems that” pubic subsidies was used efficiently. That means that residents have different viewpoints in using “pubic subsidies” earned by local restaurants and hotels.

*Reconstruction mechanism*

About the community reconstruction mechanism of Tao-mi community, please refer to the Figure 3.



**FIGURE 3. RECONSTRUCTION MECHANISM OF TAO-MIN COMMUNITY.**

## **Long-an Community**

### *Background*

The populations in Long-an community at Chun-Liao village are about 944 persons, and households are 276 units. Long-an community is a agriculture temple and the main economic corps are mushroom, banana, and long-yen. There are few job opportunities for young generation, so people run away from the community to outside. The populations in the community are more elders than teenagers or adults. After 921 earthquakes, most buildings are completely destroyed. Furthermore, six persons died and ten persons got injured. The situation that people move from old community was getting more seriously and resulted in many single elders and families lifting in Long-an community.

### *Reconstruction process*

After 921 earthquakes, residents raised the pubic feeding action. This action was took care the elders in the poor community. Besides public feeding action, medical treatment service is introduced into this activity. All cost is from privacy supporting. The event created a new model called Community Service (Rou and Wang, 2002).

The reconstruction of Long-an community are adopted the “Mode of Community Construction”. The Don-Hai University and the Jin-hwa community offered their supplement to change the reformation of environment. The residents were the main role in the process of reconstruction and participated in the reconstruction positively.

On the other hand, “Developing Organization Mode” was introduced into the reconstruction of Long-an community. This mode encouraged residents to participate everything benefit to the community, and restore the abundant resources for Long-an. By adopting the mode, the foundation is built into these transformational industries. About the reconstruction situation, please refer to Picture 3.



*Source: North Chun-Liao Workshop,  
[http://portal.921erc.gov.tw/html/20020204/community/long\\_an/grow.htm](http://portal.921erc.gov.tw/html/20020204/community/long_an/grow.htm)*

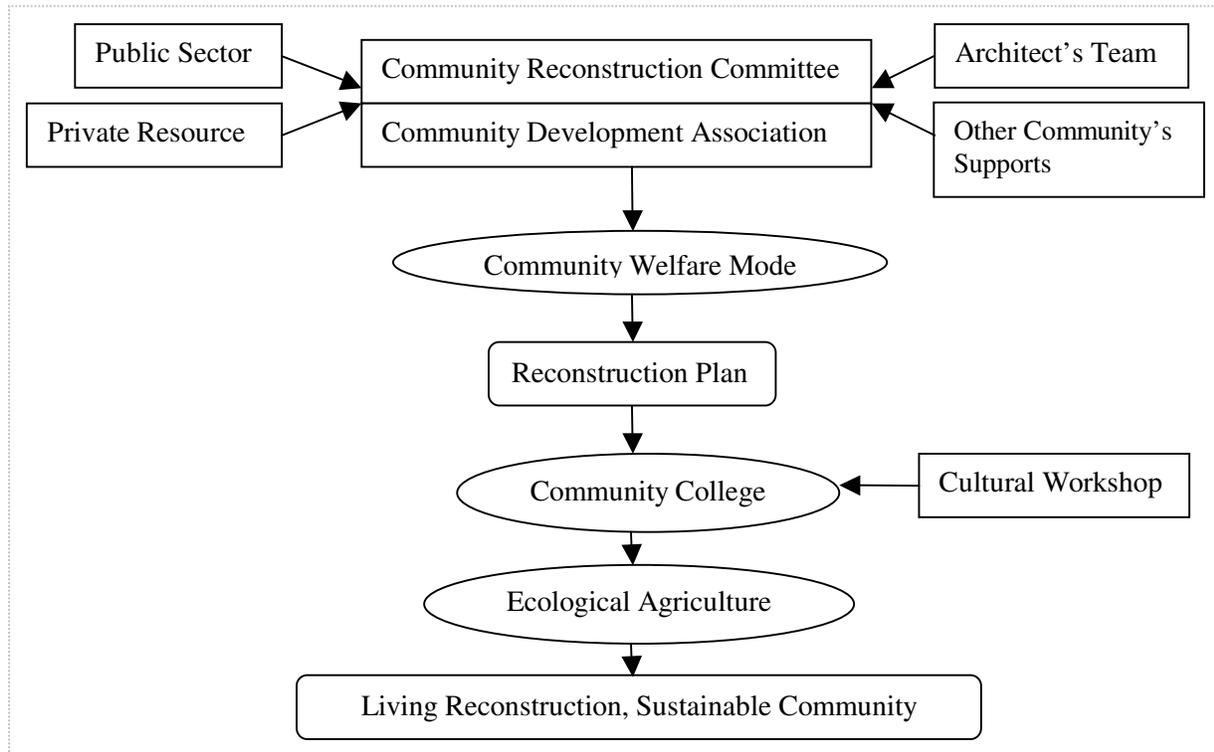
**PICTURE 3. RECONSTRUCTION SITUATION OF LONG-AN COMMUNITY.**

### *Main subject of reconstruction*

How to simulate industrial transformation is the mantel issues. The frameworks of learning, the mechanism are completed and help residents learn more efficiently. But it seems a little weak to make the extending development at industrial transformation be pushed far away. It should need to concentrate conscience by all residents in Long-an community.

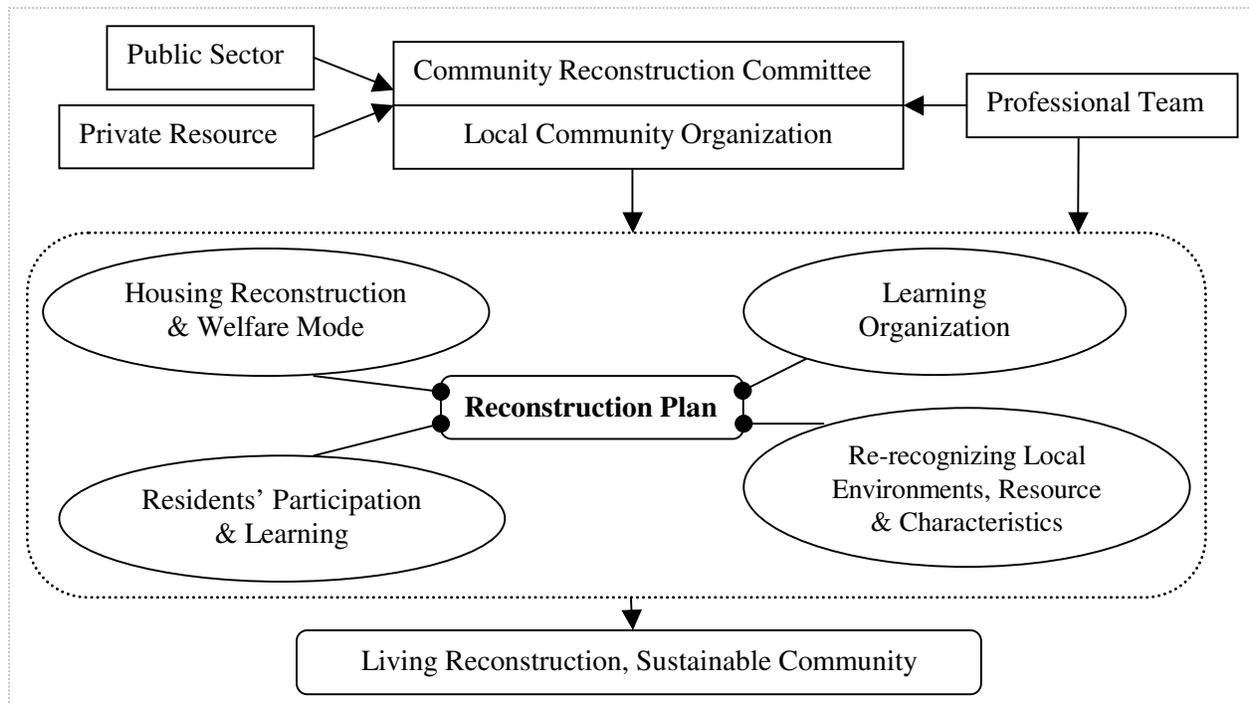
*Reconstruction mechanism*

About the community reconstruction mechanism of Long-an community, please refer to the Figure 4.



**FIGURE 4. RECONSTRUCTION MECHANISM OF LONG-AN COMMUNITY.**

From the discussion of process of community reconstruction above, some factor which will affect rural communities' reconstruction are found here, which are: local reconstruction organization, financial supports from public sector and private sector, co-operation between professional consultants and community's residents, activities to concentrate reconstruction consciousness, creating reconstruction fund, undertaking personnel training plan and setting community's developing vision. Besides, the rural community reconstruction plan is usually under the community organization to achieve the goals of living reconstruction and sustainable community development and involves in several aspects which are housing reconstruction and welfare, learning system, and residents' participation. The mechanism of rural community's reconstruction is suggested as Figure 5.



**FIGURE 5. POST-EARTHQUAKE RURAL COMMUNITY RECONSTRUCTION'S MECHANISM.**

## CONCLUSION

The variable methods such as Field Survey and Deeply Interview to realize the context within in reconstruction of Shrsui community, Tao-mi village, and Long-an community after 921 earthquakes. In the long run, the research discovered that the residents' participation, professional group involved in the action, and communities organization were the most important factors to the reconstruction, no matter in any communities' reconstruction experiences.

Secondly, financial resource or professional technologies are partly or totally provided by governmental or privacy sectors. After these groups retiring from injured communities, reconstructions should be promoted by themselves. How to make the step more successfully and efficiently is worthy to be noticed.

Lastly, the aspect of "Education" and "Learning" is separated to countryside. According to discoveries in this research, the pottery class at Shrsui community, training of environmental guidance at Tao-mi community, and Long-an Community-College are made to reach the purposes that help residents grow up in knowledge and develop the professional skills to serve communities, which are the foundation of extending development to community.

## REFERENCES

1. Wang, Shi-Der (2002), Seeking for Rural Community's Power- from the experience of rural community's reconstruction, "Taiwan Craft Journal", Vol. 10, pp.4-11 (Chinese)
2. Jwan, Han-Hwa and Wu, Yu-Ping (2000), Definition of Community Empowerment, "Community Development Journal", Vol. 90, pp.170-181 (Chinese)
3. Chang, Hon-Chen (2000), Thinking of Post-earthquake Rural Industrial Reconstruction, "Community Development Journal", Vol. 90, pp. 147-153 (Chinese)

4. Chu, Ker-Chen (1996), Analysis of Professional Team Joins Local Community Development, "Taiwan Craft Journal", Vol. 59, pp.78-86 (Chinese)
5. Rou, Sien-Yin and Wang, Yen-Hwan (2002), Welfare Community's Developments, "Teacher and Friend", Vol. 424, pp.1-3 (Chinese)
6. Shao, Pei-Chun (2003), Mechanism of Post-Earthquake Community Reconstruction for The Taiwan Chi-Chi Earthquake: In The Cases of Chun-Kong Li Community and Liu Traditional Quadrangle House, "City and Planning", Vol. 30, No. 4, pp. 371-389 (Chinese)
7. Rothman, J., Tropman E., (1987), Models of Community Organizations and Macro Practice Perspectives: Their mixing and Phasing. In Cos, F. M., erlich, J. L., Rothman, J., Tropman, J. E. (Eds), Strategies of Community Organization, 4th Ed. Itasca, Llinois: F. E. Peacock Publishers, Inc.