

An Introduction to the Concept of University – Community Business Continuity Management for Disaster Resilient City

Siyanee Hirunsalee, Paola Rizziani and Hidehiko Kanegae

Abstract—The fundamental objective of the university is to genuinely provide a higher education to mankind and society. Higher education institutions earn billions of dollars in research funds, granted by national government or related institutions, which literally came from taxpayers. Everyday universities consume those grants; in return, provide society with a human resource and research developments. However, not all taxpayers have their major concerns on those researches, other than that they are more curious to see the project being built tangibly and evidently to certify what they pay for. This paper introduces the concept of University – Community Business Continuity Management for Disaster – Resilient City, which modified the concept of Business Continuity Management (BCM) toward university community to create advancing collaboration leading to the disaster – resilient community and city. This paper focuses on describing in details the backgrounds and principles of the concept and discussing the advantages and limitations of the concept.

Keywords—Business Continuity Management, Disaster Resilient City, Disaster Management, University – Community Collaboration.

I. INTRODUCTION

DISASTER- RESILIENT community is a great dream for the researchers, who have their passion on fighting with disaster. In the last decades, enormous researchers have introduced the theories and studies that refer how to stand against disaster. Later on, the studies have shifted from the goal to against to reduce and prepare for disaster with many kinds of collaboration and concepts of management and plan. However, how can we create the disaster – resilient city is still miserable.

The terms ‘resilience’ and ‘vulnerability’ are opposite sides of the same coin, but both are relative terms. One has to ask what individuals, communities and systems are vulnerable or resilient to, and to what extent. A focus on resilience means, putting greater emphasis on what communities can do for themselves and how to strengthen their capacities, rather than concentrating on their vulnerability to disaster or their needs in an emergency. [1]

The term of resilient city implies finality, but it is always coupled with an ongoing recovery process that, for many people, will never quite end. It seems a mistake to view the resilience of cities in terms of any such search for “closure.” Rather, the goal should be productive openness, an ability to structure and confront the contradictory impulses inherent in the contested processes of recovery and remembrance. The challenge for planners and designers is to navigate between the extremes of triumphalism and despair. We don’t always get over traumatic events, but we do get through them. This, too, is a form of resilience. [2] However, The ‘disaster-resilient community’ is an ideal. No community can ever be completely safe from natural and man-made hazards. It may be helpful to think of a disaster-resilient or disaster-resistant community as ‘the safest possible community that we have the knowledge to design and build in a natural hazard context’ [1]. Thus, to create the safest possible community in the term of resilient is to actually find the possible way for the disaster victims to live safely in the disaster, to continue their business as usual and to get recovery in short time. Yet, so far many researchers announced the focal point of disaster preparedness, mitigation, recovery, response, but the key factor for the city as a whole is much more depending on the continuity.

This paper introduces the concept of University – Community Business Continuity Management for Disaster – Resilient City, modified based on three main concepts in planning theory which are; the concept of Business Continuity Management (BCM), Disaster Management (DM) and University – Community Collaboration (UCC), leading to the final outcome as Disaster Resilient City. The development of the concept will be described afterward in details in chapter two. In chapter three focuses on describing in detail of the characteristic of the concept of university – community business continuity management. Principles and operational activities are stated in this chapter. Chapter four discusses the advantages of the concept of university – community business continuity management in various significant levels in Kyoto, Japan, where the preliminary project is taking place. On the other hand, Chapter five states the limitations of the concept university – community business continuity management which learn from the investigation of universities in different environment. However in Chapter five, possible solutions from the limitations are as well provided. The last chapter, Chapter six summarizes focal and notable points from the research. In addition, provides challenged remarks for further study to the researchers covering numerous fields based on the study of the concept of University – Community Business Continuity Management for Disaster – Resilient City.

Siyanee Hirunsalee is doctoral student in Graduate School of Policy Science, Ritsumeikan University. In the same time, she is a research assistant of the Ritsumeikan Global Innovation Research Organization (R-GIRO), 58 Komatsubara, Kitamachi, Kita-ku, Kyoto, 603-8341, Japan (phone: +81-75-467-8157; e-mail: psg02073@ed.ritsumei.ac.jp).

Kanegae Hidehiko (Prof. Dr. Eng.) is a Professor in Graduate School of Policy Science, Ritsumeikan University, 56-1 Tojiin-Kitamachi, Kita-ku, Kyoto 603-8577, Japan (phone: +81-75-467-8157; e-mail: hkanegae@sps.ritsumei.ac.jp).

Paola Rizzi is a professor in the faculty of Architecture and Planning, Sassari University, Italy palazzo del pousalit, piazza duomo 6, 07041 Alghero (Sassari), Italy (phone: +39 079 9720434, fax +39 320 9234096; email: rizzi@uniss.it)

II. THE DEVELOPMENT OF THE CONCEPT OF UNIVERSITY – COMMUNITY BUSINESS CONTINUITY MANAGEMENT FOR DISASTER RESILIENT CITY

Eventually goal of this research is to find the components which would be able to complete the ideal city as Disaster Resilient City. Enormous researches have announced the important of Disaster Planning, Capacity Building and many more strategies, proposed to community to help them confront with disaster. Notwithstanding, studying from the concept of disaster resilient city, this research gives priority to planning for the continuity. One of the planning theories or concepts, well known in business administration, is Business Continuity Management (BCM). BCM advocated by USA, aims at pursuing the minimum consequential loss of businesses after unexpected emergencies. It assists private business enterprises not only to minimize their economic loss but also to maintain their competitive capacity in the economic market. BCM should be able to manage the risks, which could result in disastrous events and thus minimize the likelihood of a disaster, reduce the time taken to recover when an incident occurs and minimize the risks involved in the recovery process by making the critical decisions in advance in stress-free conditions. [3] BCM has drawn serious considerations of how to plan for disaster resilient city. However, BCM is designed to work efficient in the enterprises which are well constructed in the term of organization. Applying the concept which needs concrete organization to the community is clearly intricate.

This research has its notion of the private and public collaboration and partnership concepts. Since, Private–public sector collaboration is an essential component of building capacity in communities. Collaborative relationships often begin with local organizers who have identified specific community needs. The process continues by mobilizing key leaders and relevant stakeholders in the community. Communication strategies and mechanisms that enable information sharing are critical to expanding collaboration to the broader community. Ideally, collaboration includes representatives from local, state, and federal agencies; small and large businesses; nonprofit and faith-based organizations; academicians, researchers, and educational institutions; the mass media; civic and neighborhood organizations; technical experts; volunteers; and other diverse community stakeholders. Nevertheless, specific resources may not be available in some communities, and this confirms the importance of extending the reach of community beyond jurisdictional or geographic boundaries. When a community needs specific resources, collaborative networks may expand to incorporate regional stakeholders to fill the gaps. Disasters ignore jurisdictional and geographic boundaries, so communities will benefit by looking beyond such boundaries when building community disaster resilience.[4]

Consequently, considering making use of university resources for mutual support and centralizing the organizational system of university to surrounded community, universities are the best choices out of all urban facilities. University resources are plentiful and useful for providing the support in widespread. Comparing university with other facilities in the city, university has more advantages and fewer weaknesses to develop its usefulness for mutual

support. Moreover, the structure of university is well organized and close to the organizational system of the business enterprises. Thus, together with university support, community could have had increase the capacity to apply the concept of BCM and DM efficiently. University resources mentioned earlier have been classified into two main elements. The first element is Physical elements; such as university's infrastructure or it could be divided again into small elements as "Utility and Facility", comprised both goods and services. Utility refers to Water Supply, Electricity, Drainage system, etc., meanwhile Facility; it refers to Multimedia rooms, Gymnasiums, Pocket parks, Open Space, Fire extinguishers, etc. The second element is Social elements that refer to "Human Resources", which assembled in university and included all workers or employees in the university, such as; students, university's staffs, professors, so on, who are full with knowledge repository and expertise. The capacity of the person mentioned earlier is much more than the use of individual or self-help support, it could also be developed to offer the mutual support for the locality. However, the capabilities only are not enough to create resilient but with the applicable plan, the disaster – resilient community and city would be close to possible.

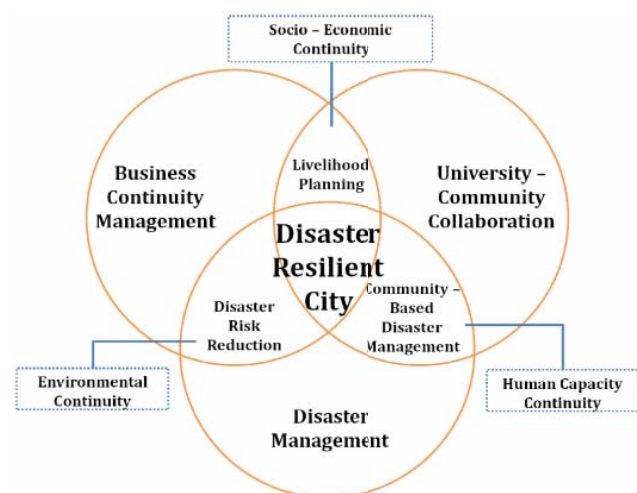


Fig. 1 Components theories of the concept of university – community business continuity management for disaster resilient city

In figure one, a diagram shows three main theories combined in invented the new concept of university – community business continuity management for disaster resilient city. The concept of Business Continuity Management (BCM), Disaster Management (DM) and University – Community Collaboration (UCC) have been merged in to create continuity in the city, which lead to the final outcome as Disaster Resilient City. Environmental, Socio – economic and human capacity continuity will drive the city in the way that is resilient even in the time of disaster or other emergency events. In this way, universities and communities in each specific area will strengthen their own capacities covering the whole area of the city.

III. THE CHARACTERISTIC OF THE CONCEPT OF UNIVERSITY – COMMUNITY BUSINESS CONTINUITY MANAGEMENT FOR DISASTER RESILIENT CITY

This research has given the definition of the concept of university – community business continuity management as “The collaboration made among university members (On – campus) and the residents surrounded community (Off – campus) to mutually manage their community’s business as usual, continuously in the disaster or emergency events. Universities are deserved as a resource for all stakeholders, either on – campus or off – campus. Therefore, universities are to prepare in advance the capacity to stand against disaster. Severe damages of disaster cause to the functions of universities are not acceptable, neither primary functions nor secondary functions. However, the title role of management does not only limit to be operated by university, but also could initiate by community when in need. In this chapter, principles and operational activities of the concept will be profoundly clarified.

A. Three Principles in Developing Management Plan

It is definitely necessary for the management to have a management plan. The management plan is to provide tools (in this research refers to Operational Activities) that ensure the actions or decisions which will be made during the unusual times. Therefore, the principles in developing management plan are needed.

1) Profile Risk and Set the acceptable damage

First step in developing management plan is to be able to estimate the risk of the possible disaster. Hence, Business Impact Analysis (BIA) is required to conduct from the beginning when applying the concept. Afterward, investigate and estimate the acceptable level of the damages that could happen to the universities and communities, in the way that effect less business movement. In this step, universities and communities are to know the specific items, places, areas, or spots in their environment that needed to be protected the most. In light of this, the prioritizations of the essential spots are required to announce.

Knowing the significant level of important avoids the situation of over budget in preparing measures. For instance; in the university’s campuses, which major in the chemical or biological studies, need to be aware of the breakout of chemicals or substances. Profiling risk and setting the acceptable damage covers not only primary disaster but secondary disaster, such as crime after disaster break out. Thus, in the disaster or emergency, it is not enough to protect the building from collapsing, fire or explosion, etc., in the same time, securing the valuable treasures are essence. There are many cases after the breaking out that victims were in panic and incidentally destroyed valuable things or some disaster victim committed crimes by stealing valuable treasures or over stocking the medical supply or even food and water.

2) Determine Incident Controls and Continuity Strategies

Second step is to prepare the plan to control the damages caused by disaster and parallel to the plan for keeping continuity of the business as usual. In this part will be amplified in topic *B. The Operational Activities*. In this step, roles and responsibilities are to concurrently written.

3) Indicate Alliances and Coordination Structures

The last step is to set up the network of the alliances. Alliances here mean the possible networks of the universities or communities which have relation in promise to support the counterpart organizations in any unfortunate events. Alliances could be the educational institutions, private organizations or government bodies. Not only the networks are obligated to set up, likewise the coordination structures are required to provide in several scenarios. For instance, in one Alliance Network, there are ten universities as members of the alliance. Unforeseen disaster hit university A, resulting nonfunctional university. Immediately, in this situation university could have made continuity of their business elsewhere in supporting from the alliances. It is not necessary to depend on one alliance member, support alliances could be define according the facilities needed in particular case.

B. The Operational Activities

The preliminary project takes place at the case study of Ritsumeikan University and Kinugasa community in Japan. Since, Ritsumeikan University, Kinugasa Campus is located on northwestern Kyoto in Japan, a 1200 year old city rich in culture and art. Kinugasa Campus is mainly surrounded by residential areas and also such auspicious temples as Kinkakuji, Ryoanji, Ninnaji, and Tojiin. Therefore, Ritsumeikan University is designated as evacuation place in case of disaster and emergency, since it has large open space to accept huge numbers of evacuees. Thus, the fundamental role of Ritsumeikan University is not just providing higher education but being shelter – in – place for the community when needed.

Research Center of Disaster Mitigation for Urban Cultural Heritage (D-MUCH) in Ritsumeikan University made an agreement with its adjacent community (Kinugasa Community) on ‘collaborative research’ on disaster management in August, 2009, for aiming at the future agreement of collaborative disaster management. To make collaboration between universities and communities meaningful and to make the agreement of collaborative disaster management save the more residents, we need to construct a framework of University-Community Collaboration for Disaster Preparedness. And as we are located in one of the most famous tourism destination all over the world, Kyoto City, we also need to save life of tourists by leading them to the evacuation places such as universities and, in case that they evacuate to universities, accommodating them as evacuees. As mentioned above, the more prepared we are for communities and tourists, the more we can react well in emergency. Therefore, the target groups of the future victims in disaster in this research are; Students, Professors, University’s staffs, Community members surrounded university and tourists. To be more beneficial for the society, Ritsumeikan University started to provide social responsibility related to disaster to surrounded communities. There are some projects provided by Ritsumeikan University. The concept contains four activities that could sustain the business as usual of the university – community, designed to serve within seven days after the disaster breaks out. In the crisis, the first seven days are probably the most important period that could direct the victim’s possibility to be survived. The project prepared based on mainly the risk of possible

earthquake at Magnitude 6, fire, typhoon and other emergency, such protest, or terrorist.

1) Operational Activities A: Shelter – in – Place

Again, in this concept, universities are design to be center and resources for the surrounded communities. Preparing the universities as shelter – in – place would shelter many victims in good conditions. Shelter – in – place is not allowed to be affected by disaster, thus improve the disaster resilient buildings in the campus are the first priority. In welcome refugees, as many safe buildings we have, as many refugees we can accept. Accessibilities to the university from surrounded communities are also need to be clearly advised. In addition, university should adapt universal design of the refugee for all users (For especially disable people), since universal design could yield the convenience for the users, hence, disable victims could operate the facilities in university by themselves. Last but not least, the most important operational activities in provide shelter – in – place for the victims is to prepare basic needs and provisions (food, water, medicine, blanket, etc.) in the campus, enough for sheltering in seven days. Waiting for supports from outside, in the time of disaster is sometime hopeless. In order of the injury that need immediate medical assistant, university could provide relief until supports arrive. The lesson learnt from Great East Japan Earthquake shown the important of shelter – in – place in the time of disaster that could make better or worst in the refugees. Under conditions of shelter – in – place will affect the refugees' mentality, eventually lead to bad physical conditions.

2) Operational Activities B: Disseminate Evacuation Information

This project starting community TV project, as know as, White Space, which covers three communities adjoining Ritsumeikan University including Kinugasa Community, used One-seg channel. One seg is a mobile terrestrial digital audio/video and data broadcasting service in Japan, Argentina, Brazil, Chile and Peru. The university manages the systems but its information source includes university and local residents, such as Jisyubosaikai (Community Self – Organization in Disaster Mitigation). By this media, in normal days we can disseminate information on disaster through TV to local residents. Residents also can distribute their information through TV through the agreement with university. This information channel could be watch from mobile phone with TV function. For those who do not have mobile phone with TV function, this project is planning to put this kind of TV into the Automatic Vending Machine along the street in the community, so that residents can watch the TV in front of the vending machine when they are buying drinks, etc. These systems are also available to tourists. As we can put the subtitles of foreign languages, we can distribute information to foreign tourists who do not understand or skilled in Japanese.

In emergency, this TV program provides useful information for evacuation, lost and found contact and so on, to all of people in the communities with facilities to watch the program. Unlike mass media or normal TV programs, information from this One-seg TV is about three communities so that victims can get information which is needed in the communities, not all over Japan. Moreover, in case of Great East Japan Earthquake, the usual TV cannot function for blackout and neither can mobile phone for many people called at the same time. Media which

survived in emergency case was SNS (Social Network Service) and One-seg channel.

3) Operational Activities C: Disaster Volunteerism Group

Disaster Volunteerism Group proposed in the project is mainly for Students in university and Community members to join. In the volunteerism group will provide the information and knowledge related disaster and volunteers will be trained exclusively, aiming for firstly helping themselves and secondly provide mutual support. Activities are such; making evacuation route map, training for perform Automated External Defibrillator (AED) machine and first aid care, etc. The main activities are to support others in evacuating to the refuges by safe and assist others in continuing their normal life during the time of recovery. This activity is essence in the project, since the project is located in Kyoto where the high percentage of elderly citizens consists. Volunteers are great helpful in recuing and assisting the elderly to the evacuation site. Nonetheless, less experience volunteers are expecting in the duty which is not risky. For instance, for student volunteer who is inexperience could help checking other students if they are found or lost, contributing provision to the refugees, whereas, a professional volunteer could engage in rescuing the victims from the debris or operating small surgery performance. However, this activity may require external supports from local government or related organization, such professional in medical, fire fighters, rescuing teams, etc.

4) Operational Activities D: Substitute Universities

As mentioned in *Indicate Alliances and Coordination Structures*, even during the time of disaster, Universities should be able to operate their fundamental roles as giving education. Preparing for the substitute universities could prevent universities from loss of stopping or postponing classes. Many universities in Tohoku area, where radiation out breaking after Great East Japan Earthquake and Tsunamis, need to stop university's activities and postpone the entrance examination, entrance ceremony and so on. These kinds of disruptions create huge loss in reputation of university and financial situation. There were number of students who withdraw or decide to transfer to other universities. Even though, universities were not hit by direct disaster but in this way, losses of financial were also huge to recover. Substitute Universities are not just to provide the place for study but to run university's business as usual which means that the managing of the data is highly important in this activity. Usually, universities obtain massive data, such as personal data of university members, data of financial, other statistical data and so on. These data are highly risky if loss and either unacceptable to be damaged. Therefore, backup system could be useful to prevent devastating loss of information. The backup information should be made in several places, through various tools. As such, hard copy in every alliance networks, backup with university servers, backup in cloud computing services, etc. The hardest part is to also educate university members to understand the important of the data and the reason to protect them. Protecting all information as it was before disaster would allow universities to continue and recover faster in recovery phase of disaster. Moreover, not stopping from providing services will create reputation and trust for the society to the universities. Running the university on schedule is either helping other sectors as a whole. For

example, to graduate student as schedule prevent the effects to the employment's status of country.

IV. THE ADVANTAGES OF THE CONCEPT OF UNIVERSITY – COMMUNITY BUSINESS CONTINUITY MANAGEMENT FOR DISASTER RESILIENT CITY

This paper indicates the advantages generated by the concept, observed through a preliminary project, divided by the level of theory into three main different levels, namely Micro - Level, Meso - Level and Macro - Level. In each level and in between levels, the concept generated the advantages to deferent stakeholders, either directly or indirectly, as could be seen in figure two.



Fig. 2The significant level of the benefits generated to different stakeholders

In Micro – Level, the advantages cover the benefits generated to Universities, as organization. Utilizing the concept would generate the benefit directly to the universities in avoiding from losses and damages which caused by business disruptions, resulting from both primary and secondary disaster. In this way, University as an organization could ensure the continuity of the fundamental activities in providing higher education to the society as usual.

In between Micro and Meso – Level, applying the concept would protect lives and assets of university and community members. Also from the process of operational activities designed in this concept, Disaster Volunteerism Activities that encourage the interactions between university members and community members, could bridge Town and Gown gap in Kinugasa district. Moreover, considering the knowledge and useful information related disaster that gained from attending in the activities, an individual could have earned lots of capacities to cope with disaster or emergency situations. Namely, the capital of knowledge and information of university and community members tended to develop when applying the concept.

In Meso – Level, in this level of the advantage could refer to the concept disaster resilient community. Creating the resilient community makes community as a whole living with no fear but promptness. The quality of living getting higher when community members feel relief that they will always working together with trustable alliance such university. Community as organization, leading by community leaders get stronger and become more structure in their community.

In Between Meso and Macro – Level, the advantage made directly to community as a whole. In this level refers to socio – economic of the community. Since, the community could be protected from the disaster via the concept. The community could maintain their social activities as usual, such as family business related to tourism. The continuity plan provides

community opportunity to recover quickly and keep running their business as usual in no time.

This level is learnt from the case study that it depends on the capacity of the collaboration between university and community. As many collaborations university could make with communities, as large scale of the advantage could span. Therefore, this level could be from single community to district or to local communities as a community network throughout the city.

In Macro – Level, the concept could secure regional and nation credits in maintaining the quality of human resources, since university will not be disrupted in providing employees to the employment market. In addition, focusing on the activities which could save the tourists in disaster, make good of the Regional and Nation Credit, in the term of reputation and security in international senses.

V. THE LIMITATIONS AND POSSIBLE SOLUTIONS OF THE CONCEPT OF UNIVERSITY – COMMUNITY BUSINESS CONTINUITY MANAGEMENT FOR DISASTER RESILIENT CITY

Most of the studies in this research concentrate on Universities in Japan. Although the issues surrounding universities in Japan and other countries in Asian are differ, yet, much of the common roles of University are similar. In seeking to understand the limitations and possible solutions, this research has as well studies on the universities in American and Europe. Therefore, the limitations drawn in this research are to reveal the difficulties of universities in applying the concept of university – community business continuity management for disaster resilient city. Consequently, procure brief possible solutions to reduce the limitations in utilizing the concept.

A. University Locations and Its Structures

The universities recommended to apply this concept are either public or private universities. The important is that in order to achieve the collaboration among university and community, and to promote the uses of universities as shelter – in – place and to service the facilities for mutual, universities should not be isolate, settled alone away from the other human settlement as village or residential areas. The concept is appropriately the most to adopt by the Dormitory Universities.

Furthermore, the structure of the buildings or constructions in the universities should be secured for the disasters. In the case of old and ancient universities which has possibilities to be collapsed or flammable, before applying this concept, the physical elements of universities need to be checked and ensured for the safety by professionals. On the other hand, the operational activities need to be defined again with different goal, such as, not to evacuate to the university but to evacuate out of the university and the information of how risky of the building in the situation of disasters should be announced to surrounded communities. Thus, in the incident, evacuees will not make the decision to go into the areas of university where defined as vulnerable for the hazards. If universities are already at risk of disasters, the concept could help in underlining the powerful of making the alliance networks. In this way, university members could also be sheltered in alliance universities (or other organizations) in control of their host university.

B. Financial Capital and Transparency in managing the budget

According to the limitations of financial that are mostly faced by most universities, this research has provided the system which is be able to apply by all universities and communities. Since, we are now preparing for the future unforeseen disasters, not every year disasters will hit. This research proposes to use the system of micro – insurance run by Host University. Micro – insurance in this case will not guarantee for your lives or assets and will not reimburse in case of injury or death. Instead, this micro – insurance program guarantee for your right to be sheltered in the university, covering seven days from the day that disaster hit.

In the case study of Ritsumeikan University and Kinugasa community, the premium of this program of micro – insurance has been calculated as 5,000 Japanese Yen per year (65.59 USD) for Ritsumeikan students and 3,000 Japanese Yen per year (39.32 USD) for Community members, surrounded university. The idea is that the first year with these amounts of money, university could prepare to stock provision, such food, water, medical supply for the evacuees in disaster time and it covers seven days during evacuating. The assumption is if disaster hit since the first year, at least all evacuees will promised to receive needed supplies using for seven days, but if disaster does not hit in the first year, the collection of the premium would be continued and improve for the other conditions of shelter – in – place. For example, in this project design for the first year; food, water and medical supply, for the second year; blanket, bed, heaters and electric generators, for the third year; portable toilet and bathroom, clothes and exercise spaces for recreation and reduce stresses, etc.

However, in some cases the problem goes deeper into who will be the one who manage the budget and who will be the one who give as inspection to the managers. The transparency in the managing is also important when expecting people to corporate with this new idea or concept. Thus, even thought the package of how to earn and settle the financial capital is already mentioned but biggest problem is transparency.

Fortunately, in the case of Ritsumeikan University and Kinugasa Community, the students in the campus agreed to let university collect and manage the premium of insurance, meanwhile in Kinugasa community agreed to let community leaders collect the premium of insurance and transfer to the university to manage for improving the conditions of shelter – in – place.

C. Decentralization

One of the key contributions made by this study is the system of decentralization. The case study has very strong and unique structure of Community self – management. The phenomenal of community organizing the project in Japan is urinary. In contrary, it is obvious for the government in some countries that may not be so happy if community and university improve their relations and getting stronger in any cases. The corporation between university and community for the government angle point of view could lead to the end of more power and for sure this could create more or less problems for government in governance. Ruling the community is difficult enough not to let the change happen for them to get more powers of negotiations.

VI. CONCLUSIONS AND FURTHER STUDIES

In sum, the concept of University – Community Business Continuity Management is one of the new challenging concept in disaster management or development in planning to generate the collaboration among university and community that leads to the creation of disaster – resilient community and city. Not only use the physical spaces of the universities but also making uses of universities in which they are the sources of knowledge will enhance the future of the city in widespread. The most essential part of the concept is that to deliver the new frontier of thinking to the universities to embrace and hopefully, if the concept does work, many universities in the city could achieve the concept, the coverage area for the disaster – resilient community could enlarge covering the scale of the city. The concept itself is not outreaching difficult to start but to maintain. Thus, the collaboration among university and community is the most crucial in developing the concept. The intention of the study to introduce the guideline and to ensure the benefit of the concept in practical will encourage the universities to approach to this concept.

For forthcoming study of this research is to focus on investigating the benefit that university and community could have when utilizing this concept by using the methodology of Social Return on Investment (SROI) to measure and account for not only the benefit in term of financial value but also social value. There are several ways to calculate the SROI but in this study we use SROI to evaluate how much social value could be contributed when the proposed project has been developed. The measurement of social value in SROI analysis for this study is Social Capital, which is divided into two elements, Trust and Commitment. A Questionnaire survey is conducted to get data in order to analyze the SROI. The target of the sampling was designated in Kinugasa Community. The questionnaires are posted door to door in each house for the community members and for community – based organization members, and the questionnaires are passed to the community leader after answering or are posted to the university. SROI analysis will lead to ratification of improving or inventing the concept. The analysis could also sustain the systems of university – community collaboration by revealing the social value that the concept will contribute. Thus we can identify that which activity meets society needs. Moreover, not only Ritsumeikan University can earn the benefit from doing this study, but also other universities, which try to start the social responsibility, can refer to or adopt the framework of this SROI in order to verify their benefits. The total annual social benefit is expected to be higher than an annual cost of CSR activities. The maximum range of return period, in this study, is for three years. Although the actual returns for a particular project would depend on the outcomes and expenses of the particular project, this study tries at least to present returns of social value that could be investigated. Therefore it is certainly possible that actual returns could be higher than these analyses, especially when a project affects the larger number of population.

Lastly, the studies of the operational activities in the concept are required by professionals. Such, the suggestion of safe constructions, technical in improving information management and backup system, thus this study in further study provide the result of the concept evaluation.

ACKNOWLEDGMENT

We truly appreciate in the financial support of this conference by Global COE for Education, Research and Development of Strategy on Disaster Mitigation of Cultural Heritage and Research Center for Disaster Mitigation of Urban Cultural Heritage. In addition, without Kinugasacommunity members and Kinugasa community leaders, this research results would not have been possible. We would like to take this opportunity convey our thanks to all of them.

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Siyane Hirunsalee was born in Bangkok, Thailand. She earned her bachelor's degree of urban planning from Thammasat University, Thailand in the faculty of Architecture and Planning in 2007. In the same year, she was awarded Monbukagakusho Scholarship (Ministry of Education, Culture, Sports, Science and Technology, Government of Japan: MEXT) for her Master. In 2009, she was granted the degree of Master of Arts in Policy Science from Graduate School of Policy Science, Ritsumeikan University, Japan. She is currently pursuing her doctorate at the Ritsumeikan University in Graduate School of Policy Science. During her studying in Japan, she was frequently hired as coordinator in the various international workshops held by the universities. Eventually, she has been employed as a research assistant by the Ritsumeikan Global Innovation Research Organization (R-GIRO) which is comprised in the Research Center for Disaster Mitigation of Urban Cultural Heritage (DMUCH) in Kyoto, Japan.



Professor Dr. Eng. Hidehiko Kanegae was born in Japan. He graduated from Tokyo Institute of Technology in Engineering for his Bachelor, Master and PhD. He is an expert for planning science related with Planning Science and Digital Planning, associated with Simulation and Gaming. He also specialized in urban and regional planning. He worked with United Nations Centre for Regional Development (UNCRD) from 1994 to 1998. From 2002 up to present, he is professor in graduate school of Policy Science, Ritsumeikan University. He earned JASAG's AWARD, the best simulation & gaming work in 1999 on Sustainable development and planning simulation systems, called PANGAEA, regional development and planning in Indonesia, granted by Japan association of Simulation & Gaming (JASAG)". In 2005, he developed consensus making modeling simulation program with genetic algorithm which was awarded JAPA Prize for Academic Excellence from Japan Association for Planning Administration.



Professor Paola Rizzi deals in simulation and territorial analysis techniques, urban design and participatory planning; she is also interested in urban planning, history of cartography and urban iconography in general, with some forays in archaeology. She works on training programs and on projects related to communication problems: from team working to social communication. In the research field she is undertaken some studies and planning of new tools for urban analysis and public participation to decision and planning processes, on new technologies and communication. The main focus is on a sustainable and durable approach to urban design and planning; disaster mitigation in urban and land planning processes; soundscape design.